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An Address
ON
THE NEUROLOGICAL ASPECTS OF
SHOCK.

Delivered before the Leicester Medical Society on Feb. 9th, 1921,

BY SIR FREDERICK MOTT, K.B.E., M.D. LOND., LL.D., F.R.S.

SHOCK may be defined as a condition of profound exhaustion and prostration of voluntary and involuntary functions of acute onset, caused by trauma, surgical operations, or sudden emotional or commotional disturbance of the central nervous system, or to the effects of toxic agents and anaphylaxis. The term has unfortunately been greatly extended by the inclusion of all forms of war neurosis under the name of "shell shock," the symptoms of which in no way differ from cases that have never been exposed to shell fire. It will be my endeavour to show that over-stimulation and exhaustion of the central nervous system play an important part in the production of all forms of shock.

PRIMARY AND SECONDARY SHOCK.

Two forms of shock may be recognised : (*a*) primary ; (*b*) secondary.

Primary shock.—This form is analogous to a faint or collapse coming on instantaneously as a result of emotional or commotional disturbance of the brain. It may come on immediately on receipt of an injury, but in some instances when the patient actually sees the injury, showing that the emotional disturbance was the cause and not the injury.

Secondary shock.—The late onset of secondary wound shock does not refute the theory that surgical shock may be the result of over stimulation by nociceptor afferent impulses exhausting the vital medullary centres presiding over the circulation and respiration ; but it allows of the conception that other factors—namely, the *toxic*—play an important part in its causation, for in secondary shock the necessary time for the production and absorption of toxins would occur.

Before passing on to discuss the two forms of primary and secondary surgical shock it is necessary to make a few remarks upon anaphylactic shock.

Anaphylactic Shock.

Prior to the discovery of anaphylactic shock by Richet it was the fashion to ascribe all the "shock" effects of the ingestion of harmful substances into the body to toxæmia. Anaphylactic shock is characterised by dyspnœa, fall of blood pressure, vomiting, and other gastric intestinal disturbances, accompanied by collapse, and in some cases by convulsions, a symptom-complex which follows the administration of any one of a large number of dissimilar substances of animal or mineral origin to which the blood and tissues is inherently over-sensitive, or has been rendered oversensitive by previous administration.

These symptoms, according to Widal and his collaborators, are accompanied and preceded by a "blood crisis" of remarkable suddenness and intensity characterised by a leucopenia with predominance of lymphocytes, diminution of blood platelets, and great alteration in coagulability. They propose to call this condition hæmoclasia, the term implying a sudden dislocation of the static equilibrium of the colloids of the blood—a bio-physical manifestation—and this was the conclusion arrived at by Bezredka in 1907. But the physics and chemistry of the colloids, about which at present we know but little, underlie all vital phenomena, and it may be presumed that in anaphylactic shock there is a dislocation of the static equilibrium of all the cells of the body, especially of the nervous system, and the term colloidoclasia would more accurately represent the condition. Idiosyncrasy may be regarded as a specialised inherent hypersensitiveness to the dislocation of the static colloidal equilibrium from the action in the body of particular substances.

THE FALL OF BLOOD PRESSURE IN ALL FORMS OF SHOCK.

In all forms of shock there is a fall of the blood pressure, and when death takes place it is by a failure of the vital autonomine centres presiding over the circulation and respiration. Now, in shock, which comes on some time after injury, this question arises : Do these vital centres fail to function, primarily on account of exhaustion through over-stimulation, or do they fail secondarily from (1) the effects of toxins, (2) from fall of blood pressure and consequent anæmia, or (3) from exæmia with concentration of blood and capillary stasis in some cases accompanied by fat embolism ?

In my opinion there is evidence to show that in secondary shock from extensive burns and severe wounds, especially compound comminuted fractures with extensive laceration and injury of the soft parts, all the before-mentioned factors conspire together to form a vicious circle, which tends to a fatal termination by failure of the vital autonomic centres presiding over circulation and respiration. In fatal primary emotional or commotional shock toxin absorption cannot play a part, for the symptoms immediately follow the exciting cause ; and a fatal termination can therefore only be due to a refractory or exhausted condition of the vital autonomic centres presiding over the circulation and respiration.

PRIMARY SHOCK AND THE PSYCHONEUROSES.

What is the psycho-physiological explanation of emotional shock ? We know that a sudden emotion may cause a "faint," a sudden loss of consciousness explicable by a sudden fall of blood pressure. Now, if the fear stimulus which caused this persists there may be a continuance of arrest of function of the autonomic centres ; and in very rare cases a fatal termination has been known to result. Individuals who are inherently neurotic or of a timorous temperament, or persons whose higher controlling centres have been exhausted by prolonged stress, anxiety, and insomnia, are most susceptible to emotional shock.

In the great majority of cases of primary commotional and emotional shock after a variable time the patient recovers. In hysterical patients some part of the field of consciousness may remain dissociated, and the result is mutism, psychic blindness or deafness, paralysis, tics, tremors, contractures, &c., all of which can be readily cured by suggestion or persuasion. Not infrequently following the emotional shock the patient remains for a time in a dazed or semi-automatic state. He has no recollection of what transpired during this period of his life. It may happen that he does not recollect the events which immediately preceded the shock ; and I have seen cases in which the shock was so severe that the memory of all past events of their life were blotted out, and in several cases of this kind they spoke only a few simple words in an infantile way, both as regards the words used, the mode of articulation, and the modulation of the voice.

Now, two types of psychoneurosis may follow emotional or commotional shock—viz., hysteria and neurasthenia ; the former was the commoner in the ranks, the latter much the commonest in officers. Hysterical symptoms arising from auto- or hetero-suggestion were curable by contra-suggestion. They were the result of a preservation of an unconscious wish-fulfilment to avoid an intolerable situation ; a defence mechanism related to the emotion of fear. The other form of psychoneurosis, which may follow emotional or commotional shock, is neurasthenia—irritable nervous weakness with mental preoccupation, concerning a situation for which the man is unable to make fitting necessary mental adjustment. In the case of officers there was a continuous mental conflict between the impulse to return to duty, fearing otherwise that they would be considered either cowards or scrimshankers, and the fear of returning to an intolerable situation, not always intolerable on account of the danger to life, but intolerable because they felt they did not possess the will-power and energy to undertake efficiently duties and responsibilities involving the lives of their men. This mental conflict, combined with insomnia and unrefreshing sleep accompanied by terrifying dreams, together with the effects of previous stress and strain of war can exhaust the vital energy of a good soldier and render him more susceptible to either primary or secondary shock.

Now, one of the problems medical officers in the Great War had to decide was whether a case of shock should be classified as a battle casualty. Was the patient sufficiently near a large shell when it exploded to cause commotional shock? Especially would such a classification be justifiable if the man were buried, or if the shell burst in a dug-out, or closed space, where the effects of repercussion would be felt and if he had signs of contusion on the body. Still, many individuals with an inborn or acquired emotivity might suffer so severely from emotional shock that it would be extremely difficult to decide from symptoms whether the case was commotional or emotional. For a man neuro-potentially sound, after prolonged stress, anxiety, and exhaustion of trench warfare, may become emotive. The previous conduct of the man as a soldier, the time he has been on active service at the front prior to the occurrence of the shock are important indications. If when he recovered consciousness there existed a retrograde amnesia and he exhibited neurasthenia and not hysterical symptoms it may be presumed that the case was one of commotional shock. Observations, moreover, show that in commotional shock, as distinct from purely emotional shock, the cerebro-spinal fluid exhibited an increased pressure when lumbar puncture was performed; it has also been found that the fluid upon examination contained protein and in some cases blood. True commotional shock is, relatively to emotional shock, rare, perhaps 5 to 10 per cent. of the cases of so-called "shell shock."

"COMMOTIONAL SHOCK."

The forces generated when high explosives are detonated are enormous, and men have been found dead from shock without visible injuries to account for it in dug-outs and closed spaces where percussion and repercussion can occur. Undoubtedly there is a condition of true commotional shock, although there is a tendency now almost to decry its existence. The brains of soldiers who have died of commotional shock have been sent to me to examine, and my observations show that this form of shock is a definite condition not met with in other forms of shock which I shall describe. Moreover, Colonel P. W. G. Sargent, in a very interesting introduction to an article on Shock, published by the Medical Research Council, gives instances of two cases of death from shock caused by explosives, in which the brains showed no naked-eye evidence of injury and no fracture of skull. Perhaps if the brains had been examined microscopically similar changes to those which I shall describe might have been found.

Before, however, considering the nature of the different forms of shock, let me call your attention to some anatomical and physiological facts bearing upon the subject of primary and secondary shock.

Anatomical and Physiological Facts Bearing upon Shock.

Referring to the theory of dislocation of the static equilibrium of colloids as a cause of anaphylactic shock, we may ask, may this be an explanation of commotional shock, in which no sufficient visible macroscopic or microscopic changes can be found to account for the symptoms. The study of the living neuron shows that Nissl bodies and fibrils in the ganglion cells are artefacts, the result of death changes, and due to the action of fixatives and stains; for if we look at the living nerve cell by direct illumination, we see an emulsion of black dots in the plasm, in the centre of which is the nucleus; the converse is observed in the cell when examined microscopically; for it seems to consist of a plasm in which are numbers of highly refractile granules of similar shape and size, with a dark-looking non-refractile nucleus, which contains none of these granules. When the living cells are stained with vital blue the granules take the blue stain. If the cells so stained are kept in cerebro-spinal fluid in an atmosphere of N the blue colour fades to a green. This affords evidence that the granules form an oxygen surface like spongy platinum. By the catalytic action of the P and Fa of the nucleus the molecular oxygen on the surface of the granules is continually being converted into atomic oxygen, and this process is fundamental to the life and functional activity of the neuron. Now it is conceivable that a violent commotion, even without contusion sufficient to cause minute hæmorrhages into the nervous substance, may have a profound effect upon these delicate colloidal structures and cause a dislocation of static equilibrium. The force of the explosion may be so great as to be conveyed through the enclosing structures of the brain, and in spite of the special protective water-cushion mechanism of the cerebro-spinal fluid, cause a "shock" to the vital centres of the medulla, and sooner or later a fatal termination; the rupture of small vessels may not be sufficient of themselves to account for death, but are merely an expression of the force of the explosion.

Nissl Granules and Neural Energy in Relation to Shock.

Do we possess methods by which we can ascertain the existence of exhaustion of the neural energy of the ganglion cells and biochemical changes upon which can be established a neuropathological theory of "shock." Now, although the Nissl bodies are artefacts, yet the amount of this basic chromophil substance may be regarded as an index of the amount of stored energy substance; and to continue the argument we must assume that stimuli arriving at the cell excite the katalytic action of the nucleus and the stored latent energy substance is thereby transformed into active energy in the form of stimuli, which are transmitted directly or indirectly to muscles and glands through systems of neurons. Now it is quite obvious that excessive stimulation, when associated with multifarious depressing conditions, may lead to exhaustion by over-stimulation of this latent store of neuro-potential; and particularly is this likely to occur if there is a fall of blood pressure accompanied by other contributory factors, especially pain and loss of sleep, during which neural energy is stored. Crile's experiments show that an exhaustion of the kinetoplasm may occur from absence of sleep.

Crile's Theory of the Inter-relation of the Brain, the Thyroid, and the Adrenal Glands in Relation to Shock.

Crile maintains that there is an inter-relation of the brain, the thyroid, and the adrenal glands. He puts forward the theory that "through the special senses and common sensibility environmental stimuli reach the brain and cause it to liberate energy, which directly or indirectly activates muscles and glands, among others the thyroid and adrenals." The thyro-iodin is essential for the storage of neural energy. The clinical symptoms of myxœdema show this, and I have found in seven cases of myxœdema a great diminution of this basophil-staining substance of the neurons, especially affecting the autonomic cells of the medulla.

The work of Cannon and Elliot has shown that in anger and fear there is an increased quantity of adrenalin discharged into the circulation. The instinctive protective reaction in a struggle for life in man is either fight or flight, both of which require an increased production of energy in the whole neuro-muscular mechanism. The store of adrenalin in the suprarenal gland is a defensive mechanism for emergencies connected with the instinct of self-preservation. Not only does the substance raise the blood pressure; it stimulates oxidation processes, mobilises the glycogen in the liver as sugar, and increases the coagulability of the blood; and it also excites the discharge of thyro-iodin into the circulation. This automatic pouring out of adrenalin and thyro-iodin is brought about by an excitation of the autonomic centres in the medulla conveyed to the suprarenal glands by the splanchnic nerves. In persistent paralytic fear or persistent psychic shock there is a continued emotional refractory reflex condition of these medullary autonomic centres causing establishment of a vicious circle connected with the normal storage and discharge of neural energy. This condition is much the more likely to occur in trench warfare than in a war of action; for the soldier exhausted by prolonged stress of enforced inactivity, unable to fight or run away, the two instinctive protective reactions to threatened dangers, has to adopt the paralytic crouching attitude of concealment.

Having thus dealt briefly with the psychic mechanism of emotional shock I will pass on to a description of the morbid changes found in "commotional shock"; but it must be obvious that a man whose neural energy has been exhausted by stress and strain and has become neurasthenic is more likely to suffer severely and die from shock caused by the explosion of a large shell near him than a man whose neural energy is not in a state of exhaustion. The following case illustrates this point:—

Case of Commotional Shock and the Microscopic Findings in the Brain.

A soldier developed nervousness, owing to the severe stress of fighting on the Somme, which he never lost, but was able to control for six months. Later he was in an area which was subjected to an intense bombardment, during which, as far as can be ascertained, no gas-shells were used; this lasted about four hours. Although he remarked to another man "he could not stand it much

longer," he did not give way until the following day, 12 hours later, when perhaps six shells came over. He was not buried and not gassed. One burst just behind his dug-out—viz., 10 feet away—in the morning, but many must have been as near the previous day. Early symptoms were general depression and tremors. The later symptoms were coarse tremors of the limbs, crying, inability to walk or do anything. He could not answer questions and his pupils were dilated. The condition of the pulse is not noted. The M.O. who made this report states that he was very busy with wounded at the time, and unfortunately did not make a detailed examination. He was admitted to F.A. in the evening in a state of acute mania, shouting "Keep them back." He was given two hypodermics of morphia and chloroform and slept all night. Next morning he woke up apparently well and suddenly died. It cannot be said that the clinical notes are very satisfactory, and from the correspondence it appears that there was some difficulty in obtaining them. The report of the P.M. examination by Captain Adrian Stokes is completely satisfactory. I will do no more than give his conclusion. "There was no gross lesion of the viscera, which would have been a cause of death, but though I have never seen a case of 'shell shock' I consider the condition of the brain is consistent with that diagnosis." The notes state there were no external marks of violence on the body other than some small scratches on the chest wall. The lungs were œdematous, and in the substance of the lower lobe of the left lung there was a hæmorrhage.

Head.—There was a slight bruise on the scalp in the frontal region. The brain was extremely congested, and on each side of every vessel there was an ecchymosis. There were a number of minute punctiform hæmorrhages at the termination of the smallest vessels on the surface of the brain. The whole brain was soft, but not markedly œdematous. The cerebro-spinal fluid appeared to be tinged with blood. There was no large hæmorrhage found and no small intracerebral petechiæ.

It may be remarked that hæmorrhage into the lung has been found in animals exposed to the force of detonated high explosives and a similar condition of the brain.

The main interest of this case is that there was no complication of gas poisoning; in the other two cases this cannot be excluded, and probably existed for the punctiform hæmorrhages found in the corpus callosum, and white matter is found in CO and other forms of gas poisoning due to thrombosed vessels. In the white matter of the corpus callosum, the internal capsule, the basal ganglia, the pons and medulla there are seen congested veins and hæmorrhage into the sheaths of the vessels; and in the lower part of the medulla oblongata a vessel has ruptured, not only into the sheath of the vessel but into the adjacent nervous tissue. Inasmuch as in this case death in all probability resulted from heart failure, it may be associated with the changes observed in the cells of the vagus nucleus. The macroscopic and microscopic appearances of the brain are consistent with fall of blood pressure and cerebral anæmia.

CEREBRAL ANÆMIA AND SHOCK.

I have found that certain similar conditions indicative of cerebral anæmia exist in the brains of all cases of fatal shock, whether primary, due to shell concussion, or secondary shock following cases of (1) extensive burn, (2) severe gunshot wounds with fracture of bones and much laceration of tissues, and (3) contusion of heart and slight gunshot wounds. In most instances there was a wet condition of the brain; in a few cases the superficial veins were noted as being congested at the post mortem. I have observed similar conditions in the brains of animals after ligation of all four vessels. They indicate a deficiency of blood in the brain, its place being taken by cerebro-spinal fluid.

MICROSCOPIC EXAMINATION OF BRAIN IN SURGICAL SHOCK.

Microscopic examination revealed in all these cases of shock (1) many empty collapsed vessels in the substance of the brain, with dilatation of the periadventitial spaces and perineuronal spaces, both of which are filled with cerebro-spinal fluid; (2) a variable degree of chromatolysis of the brain cells, most marked and obvious in the autonomic nuclei of the medulla oblongata and less marked in the bulbo-spinal motor nuclei—e.g., the hypoglossal and cervical spinal motor cells; (3) the smaller pyramidal cells of the cortex are, as a rule, more affected than the large pyramidal and Betz cells; (4) the cells of Purkinje have shown definite chromatolysis and a tendency to take the eosin-acid staining dye in place of the blue basic dye. This confirms the observations of Crile, who noted this change of staining reaction in all forms of shock, whether in human beings or as a result of experimental conditions in animals.

Why does this occur with such constancy and intensity in this organ of uniform structure? There are many biological and physiological facts in support of the view that one, and perhaps the most important, function of the cerebellum is that of a large store of neural energy for reinforcing muscular action. The acidophil reaction which Crile found that these cells manifested, he used as one argument in favour of "acidosis" in the production of shock. In the very remarkable and extensive series of researches which have been carried out under his direction, attention has been directed only to the cerebellum. Other cells of the central nervous system do not show this acidophil reaction. But that "acidosis" is an essential factor cannot be claimed for intravenous injection of alkaline. Locke or Ringer's fluid does not prevent a fatal termination in cases of shock.

Fat Embolism in Surgical Shock.

Porter examined the brains of a number of cases of surgical shock caused by extensive gunshot wounds and found fat embolism. He came to the conclusion that this might be the cause. I have found fat embolism in three cases of gunshot wound with compound comminuted fractures of large bones and much damage and laceration of the soft tissues, but I do not think it was sufficient to cause a fatal termination, although it may have been a contributory factor, seeing that vessels in the medulla contained droplets of fat.

Absorption of Histamines in Surgical Shock.

A more important cause of secondary wound shock is the absorption of histamine or toxic substances from the damaged muscles. The arguments advanced in favour of the absorption of toxins derived from damaged muscles are: (1) A number of these men suffering from pure muscle injury have died of shock. It has been established that microbic infection is not an important factor in these cases. (2) Great improvement may follow rapid amputation of a lacerated limb. (3) Bayliss has shown experimentally that violent damage of the muscles of an animal while under anæsthesia causes shock; but Crile would argue that when you damage a tissue, although that animal may not show any signs of feeling, it is nevertheless receiving nociceptor stimuli, and it is quite conceivable that these nociceptor stimuli reaching the great central station for pain, the optic thalamus, are unconsciously reflected down to the cardiac and respiratory medullary centres. Morphia, carefully administered—and it may be remarked that it is contra-indicated if there is cyanosis—will relieve pain and excitation of the nerve centres and help to prevent shock in severe wounds.

Experiments of Dale on Histamine Shock.

There is experimental evidence that absorption of toxins derived from damaged tissues play an important part in the production of shock; for Dale has shown that injection of histamines produces shock. In one case, after slow infusion occupying an hour, death took place from failure of the vital centres. During that time the cells had used up a certain amount of the basophil staining substance shown by the comparison of the appearance of the cells of the medulla and the large flask-shaped cells of the cerebellum with similar cells in the brain of an animal which died three minutes after infusion at once of the same amount of histamine. In this case of sudden death there was no time for the cells to use their stored energy substance; consequently they present a normal staining appearance.

The former experiment would represent what actually takes place in wound shock—viz., a slow poisoning of the vital centres. It may be presumed that in the former there was a slow and progressive fall of the

blood pressure; in the latter there was a gradual fall. Four other brains are being investigated.

Vascular Theory of Shock: Exæmia of Cannon.

I have not said anything yet about the vascular theory; it was formerly held that in "shock" the blood pressure fell, owing to its accumulation in the capillaries and veins of the abdominal organs. But it has been found that this is not the case. There is, however, a concentration of the blood and stasis in the capillaries of the body generally, a condition which Cannon calls "exæmia." The plasma exudes through the capillary walls into the tissues; and in proof of this concentration is the fact that the hæmoglobin index is increased, likewise the blood cells count.

TREATMENT OF SHOCK.

Intravenous injection of salines proved useless; in some cases transfusion of citrated blood and gum saline solution, which was introduced on the assumption that it could not escape from the vessels, have raised the blood pressure and led to recovery; in others, as in the four cases of which I have investigated the brains, these measures were unavailing. Crile recommends introduction of fluids by natural methods—e.g., Murphy's drip enema of 5 per cent. glucose and 5 per cent. soda bicarbonate solution. Stimulants seem to be useless, also injection of adrenalin and strychnine.

I have already pointed out that all causes of exhaustion of vital energy, whether psychical or physical, predispose to primary and secondary shock. In the case of the wounded in battle, thirst, exposure to cold and wet, delayed evacuation, rough and prolonged transport to hospital, and suffering with acute physical and mental agony conspire together to sap the vital energy, and when in consequence of circulatory failure and toxæmia the vital centres of the medulla become refractory and fail to discharge impulses the blood pressure falls progressively, and eventually in spite of all remedial measures the circulation and respiration cease.

In secondary wound and burn shock I did not find hæmorrhages; I conclude, therefore, that in cases of true "shell shock" this condition is due to physical effects produced by the forces generated by the explosion, but in some cases to the poisonous effects of gases absorbed while the man is lying unconscious.

In resuscitation from surgical shock practical experience shows that the treatment of the following phenomena have yielded satisfactory results—viz., (*a*) the fall of blood pressure; (*b*) the fall of the body temperature; (*c*) the lessening of the volume of the blood. Experience shows that cases of hæmorrhage combined with little shock yield the best results.

In conclusion, I desire to say that a full report of the neurological changes will be published shortly by myself and Dr. Uno, of Tokio, who is at present engaged in making an investigation of the microscopic changes in my laboratory under my direction.

Bibliography.—Reports of the Special Investigation Committee on Surgical Shock and Allied Conditions, Medical Research Council. National Health Insurance, Special Report Series, No. 25, No. 25. Surgical Shock, Crile and Lower, W. B. Saunders and Co.

Lieutenant-Colonels Walter Lidwell Harnett, I.M.S., and **Francis Kenneth Kerr**, R.A.M.C., and **Dr. John Sinclair** have been appointed Esquires of the Order of the Hospital of St. John of Jerusalem in England.

AN EXTENDED CURFEW IN DUBLIN.—For some months past, writes our Dublin correspondent, the curfew hours in Dublin have been from 10 P.M. to 5 A.M. Unfortunately, a number of attacks on parties of military or police occurred recently in the streets between dusk and curfew, and after giving warning that if such attacks did not cease curfew hours would be extended, last week the military authorities ordered that in future curfew would begin at 9 P.M. instead of 10 P.M. As heretofore medical practitioners, clergymen, and nurses will be granted permits to be abroad on urgent professional business. The earlier hour of curfew will put great difficulties in the way of the various medical societies whose meetings have always hitherto been held in the evening. No doubt an attempt will be made to substitute afternoon meetings.

FURTHER NOTES* ON THE INTRAVENOUS INJECTION OF ANTIMONY TARTRATE.

LEUCODERMA AND SKIN COMPLICATIONS; ADMINISTRATION OF LARGE DOSES.

BY J. B. CHRISTOPHERSON, C.B.E., M.D. CAMB., F.R.C.P. LOND., F.R.C.S. ENG.,

TROPICAL DISEASES CLINIC, MINISTRY OF PENSIONS; LATE DIRECTOR OF THE CIVIL HOSPITALS OF KHARTOUM AND OMDURMAN.

THE temperature chart which I am publishing with this communication is that of a Sudanese boy, aged 18, a student at the Gordon College, Khartoum, during the course of treatment by the intravenous injections of antimony (pot.) tartrate for kala-azar. He was admitted into the Khartoum Civil Hospital on March 9th, 1918, and was given 87½ gr. of antimony (pot.) tartrate in 86 days by intravenous injections, and discharged on August 18th, cured so far as we could say. His was a well-marked case of kala-azar, with considerable enlargement of liver and spleen, and an intermittent temperature. He had noticed his illness for some months. Leishman-Donovan bodies found in splenic punctures on at least three occasions; no unfavourable complications such as ulceration of mouth, diarrhœa, œdema of legs, &c. In August, 1920, two years after the course, he was quite well, and subsequently he was accepted for permanent Government service.

In publishing this case I do not wish to advocate the habitual administration of large doses of antimony tartrate even in diseases for which it is appropriate; antimony and its derivatives are powerful and potentially dangerous drugs, and in all cases the minimum dose necessary is the dose to be given. My object is to emphasise the fact that a very considerable amount of antimony tartrate may be injected if necessary into the veins without ill-effect, and to comment on certain incidents and complications which occur during the course of the administration of antimony tartrate for kala-azar, and for other diseases within my experience.

The temperatures in the ordinary native wards of the Khartoum Civil Hospital are taken by the native attendants, more or less under the supervision of the resident doctors, and are charted twice daily. The chart published with this article, representing four months, corresponds to the ordinary kala-azar chart made under these circumstances, recorded approximately at 7 A.M. and 7 P.M. It does not show the characteristic kala-azar deviations of temperature during the 24 hours of the day, as it would had it been registered every two hours. The rise in temperature till noon, followed by a drop, and a rise again at 4 P.M., forming a notch between 12 and 4 P.M., would then have been apparent. (A similar notch occurs at the same period during the night,[1] making a notch in the chart during each period of 12 hours.)

The chart indicates: (1) That kala-azar is *curable* by antimony tartrate administered intravenously; this fact is now too well known to need comment. (2) That a large quantity[2] of the drug is sometimes necessary (87½ gr. in 86 days in this case) to effect a cure, and may be given with impunity, provided it is administered with care. (3) That 3 gr. of antimony tartrate[3] may be injected every other day with beneficial results for 16 times in 33 days, totalling 60 gr. in 48 days, doses gradually increasing from 1 gr. to 3 gr. (see chart, May 26th to July 11th). (4) That this may be done soon after the preliminary but insufficient course

* Previous references to the writer's work on the subject appeared in THE LANCET, 1919, ii., 299, and 1920, ii., 528 and 1200.

[1] Colonel C. Donovan, I.M.S., pointed this out to me and gave me a chart to show it.

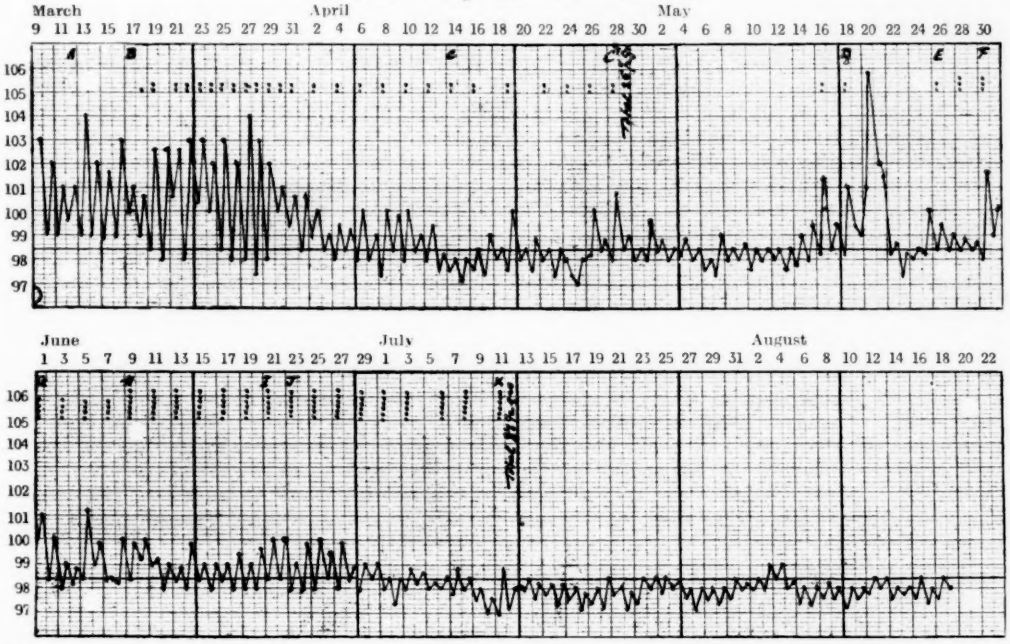
[2] A patient should be examined before commencing the course of injections in order to ascertain the existence or otherwise of contra-indications; stone, fistula, and certain renal complications often associated with bilharzia do not contra-indicate, whereas organic diseases of heart and kidney do contra-indicate injections for any reason. In far advanced cases of kala-azar it had best be withheld. My advice is, having ascertained that contra-indications are not present, inject with confidence.

[3] I have sometimes injected 4 gr. ant. pot. tart. at one time in cases of bilharzia.

(25·5 gr. in 41 days has been administered, during the early period of which 1 gr. antimony tartrate was given every day, afterwards every other day (see chart, March 17th to April 28th).

So much for the cumulative action of antimony. Of the more usual incidents attending the administration of antimony tartrate intravenously, the irritating cough at the time of injection—so constant when the potassium salt is used, but less frequent with sod. ant. tartrate—the metallic taste in the mouth and throat, the salivation, colic[4] and occasional diarrhœa, the nausea, retching, vomiting, the passage of a large quantity of urine two hours after injection, the occasional *faintness*[5] and collapse with cold clammy perspiration—of all these incidents only the cough, the metallic taste, and a little tightness or discomfort in the chest are frequent; in my experience they may indeed be considered almost as symptoms of the injection. When the others occur they indicate a need for caution. Cough, retching, a little colic, and diarrhœa show that the maximum dose for the time being has been reached. Jaundice and more albumin in the urine than can be accounted for by the disease under treatment indicate, in my opinion, danger; when they occur permanent organic damage to liver and kidneys will result if the injections are continued. Both liver and kidneys deal with the injected antimony tartrate, and their epithelium is liable to damage in the effort of these organs to eliminate it. To watch the effect of the antimony on the kidneys the urine should be examined after each injection. An attack of jaundice sometimes complicates the injections, indicating interference with the functions of the liver; but a much commoner complication indicating interference with the metabolism of the liver-cells by the antimony is shown by pains in the shoulders, and "lumbago" or muscular pains in arms or legs, sometimes so aggravated that the patient cannot turn over in bed. These pains appear to come on 4 or 6 hours after the injection, after a total of about 10 gr. have been given. At the same time the urine is loaded with crystals. In such a case it may be that certain products of digestion are not being elaborated as they normally should be by the liver, and the result is pain in various parts of the body of a rheumatic or arthritic nature, owing to the presence in the circulation of "toxins" produced by the liver. These pains usually pass off, but if they are severe it may be advisable to suspend the injections or reduce the dose.[6] They indicate interference by the antimony with the normal metabolism of the liver.

Kala-azar: Temperature and Treatment.



Each dot in temperature column represents 0·5 gr. ant. pot. tartrate. Total on April 29th, 25·5 gr.; on June 21st, 60·5 gr.; on July 11th, 87·5 gr. A, Blood negative for malaria. B, Leishman-Donovan bodies found; splenic puncture. C, Spleen measures 6½ inches below costal arch. C', Total 25·5 gr. injected. D, Injections recommenced and suspended for a few days owing to reaction. E, Injections recommenced; spleen 3½ inches below costal arch; 10 gr. quinine daily commenced. F, Splenic puncture negative; leucoderma patches appear. G, 2 gr. P.A.T. per dose. H, 3 gr. P.A.T. per dose. I, Total 62 gr. J, Weight 8 st. 7 lb. K, Injections suspended; spleen normal to percussion; weight 8 st. 8½ lb.; total P.A.T. injected 87·5 gr.

Leucoderma.

This Arab boy had one very notable and, I believe, rare complication during the course of injections—namely, disturbance in the pigment distribution of skin and mucous membrane; he became piebald. Leucoderma began to appear after a total of 30 gr. were administered. (See Fig. 1.) Though occasionally one sees rashes, erythemata generally, I had not before seen this profound pigmentary disturbance of the skin during injections of antimony tartrate. The leucoderma areas are well shown in the photograph.

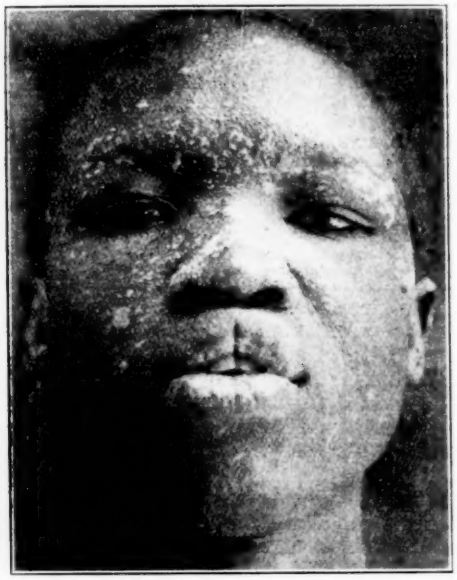
[4] An Englishman of 40, who had contracted bilharzia five years previously, complained of a pain in the abdomen half an hour after each injection when a dose of 2 gr. was reached; this was always followed by a diarrhœa motion, after which he felt quite well. Tolerance: In the course of antimony tartrate injections it sometimes happens, as in this case, that the patient retches, or, it may be, vomits immediately after the injection even of 0·5 gr. If care be taken not to increase the dose too rapidly and perseverance be exercised a tolerance is established. The patient under consideration retched on the table after first dose (½ gr.). Next day when given 1 gr. he vomited once. A day was omitted; on the next day (4th) he vomited again (once) after 1 gr. The drug was continued daily (1 gr.), and the patient established a tolerance at the eighth injection after 7½ gr. had been injected.

[5] In certain cases due to idiosyncrasy or perhaps to faulty arrangements, such as an indigestible meal previous to the injection, a patient will become dusky and drawn in the face, with contracted pupils and a slow feeble pulse; for such a patient the succeeding dose should be reduced and the arrangements adjusted.

[6] The pains are experienced when the full dose (2½ gr.) is being given; it is sometimes sufficient to reduce the dose by ½ gr. Another explanation of the "rheumatic" pains is that they occur when the drug reaches a certain concentration in the blood; this is not so, however, because if the amount of antimony is diminished by a smaller individual dose they do not recur, even although the concentration is greater after the reduced dose

They appeared all over the body, but chiefly on the face and head (even on the palms of the hands and soles of the feet). On the face and body there were small, irregular, sharply outlined patches of absolutely white skin on the chocolate ground.

FIG. 1.



A. F., aged 18. Note white (leucoderma) patches on face, which extended all over the body; and lichen condition of skin.

Lichen planus.—A goose-skin or "lichen planus" condition (see Fig. 2) occurred somewhat earlier than the leucoderma and was distributed all over the body. I have noticed a "lichen planus" type of rash in other cases during injections of antimony tartrate, the shiny, velvety, smooth-all-over black man's skin becoming rough, dull, bumpy, and granular. Both these cuticular disturbances disappeared spontaneously, the "goose-skin" first, a month or two after the injections ceased; but, much to the boy's disgust, the skin of his lips remained a rosy pink instead of a dull red. These skin phenomena indicate that the skin is concerned in the elimination of the antimony from the patient; acting on this hypothesis, I have in two cases tried intravenous injections of antimony tartrate for chronic skin disease, psoriasis, with, I think, some success.

The doses of antimony tartrate recommended in bilharzia disease (20–30 gr.) have been described as "perilously high." They may be so; but they cure the patient and do him no harm.[7] The risks of antimony poisoning are known, and one naturally works with care. For the cure of internal leishmaniasis even larger quantities of antimony tartrate are required than for bilharziasis (it may be 87 gr., as in this case). Kala-azar is a formidable disease, and larger doses are justifiable. "Give as much antimony as the patient will stand in such cases, carefully checking the results of each dose; but give as little as is necessary," appears to be the sound rule for guidance. In India colloidal antimony has been recommended in order to reduce the amount of antimony tartrate necessary for kala-azar.

In the case of oriental sore (Delhi boil) as little as 5–8 gr. ant. tartrate intravenously injected is often sufficient to effect a permanent cure. To give as little as is necessary, and to stop dosage directly the object is attained, would seem to be the corollaries of the treatment. Trypanosomiasis appears to resist antimony to a greater degree than kala-azar. For none of these diseases does there appear to be a fixed (total) curative dose any more than there is a fixed single dose. Intravenous medication is empirical; the capacity of the vascular system of the individual can be calculated, but different organisms vary in their resisting power and different strains of the same organism vary in their power of resistance to A.T.

Doses also vary[8] with the individual patient—one person tolerates a larger dose of A.T. than another—but, speaking generally, it is a good rule to work on carefully until the objective is gained (or until danger threatens), in all diseases in which antimony appears to have a specific action.

The intravenous injection of antimony tartrate raises questions of considerable interest for the clinician. How is it that so large quantities of what we regard as a very potent and toxic drug may thus be introduced into the human body when the maximum dose by mouth is so small? The official (B.P.) dose of ant. pot. tartrate is $\frac{1}{24}-\frac{1}{8}$ gr., but one may with beneficial effect inject into the veins at one dose 3 gr., and repeat it every other day for 16 injections. (This is not a question of establishing a tolerance for the drug because under no circumstances will a patient tolerate such doses by mouth.) Another interesting fact is that a small dose only can be given by the mouth and practically none hypodermically, on account of its irritating and necrosing action; whereas as much as 3 gr. (in 10 c.cm. or less water) can be given without any local injury, and with no harmful effect on the general economy, provided it is injected into the lumen of the vein. Regarded as a tissue, the blood is capable of resisting a very considerable amount of rough treatment.

FIG. 2.

Showing lichen condition of skin of body during injection of pot. ant. tartrate. Also incidentally showing white leucoderma patches on face and body.

The intravenous injection of antimony tartrate also raises interesting biological questions. I have pointed out, when writing on the effect of antimony tartrate on bilharziasis, that the antimony circulating in the blood, killing the adult worms, also penetrates the shell envelope and kills the myracidium within. It would

[7] It has been stated that a total of 10 gr., or even less, is a sufficient quantity of ant. tartrate for the cure of bilharzia. A British army officer, who contracted bilharzia in Egypt two years previous to the course of injections, had 22½ gr. (total); eight months later slight vesical irritation recurred; a few live ova reappeared in the urine, and I gave him another course of 30 gr. On the other hand, an English boy of 8 years, from Nyassaland, was cured after a total of 9 gr. The killing dose appears to be a variable one; some strains of bilharzia worms are more resisting than others.

[8] Young people take antimony tartrate very well. Older people with organs healthy except for the disease for which it is given—bilharzia: leishmaniasis—as a rule, take it well. In patients over 40 it should be given with more caution. Certain people appear to be unable to tolerate a full dose. It is always advisable to commence by a small dose of ½ gr., increasing it cautiously; when the maximum single dose has been found it may be injected every other day—in England it is usually considered to be 2½ gr. Some Soudanese I found tolerated 3 or even 4 gr. well, others showed signs of an over-dose when 1 gr. was reached. A patient in the latter stages of kala-azar will obviously not tolerate as large doses of a cardiac depressant, such as antimony tartrate, as will the ordinary bilharzia patient. The fact is that young people especially tolerate the injections well, and people with organic disease (especially cardiac), badly; there is a certain number of apparently healthy persons who are intolerant.

seem probable that it acts in the same way towards the Leishman-Donovan body whose envelope is also *permeable*; moisture disorganises this body—a dry syringe is necessary when splenic punctures are made for diagnosis of kala-azar—and we also know by experience how difficult it is to find the Leishman-Donovan bodies in the splenic or liver smears post mortem and in the sections of dead tissues, so sensitive are they to the environment that directly death takes place they disappear—i.e., break up, and cannot be demonstrated.[9]

We can understand these facts if there be free and easy communication through the limiting membrane—the envelope of the L.D. body. The permeability of the L.D. body envelope or membrane is further indicated by the kala-azar temperature chart and also by the profound constitutional disturbances caused by the disease—the body inside the envelope manufacturing waste products, toxic to the human organism, which escape through the shell and are possibly replaced by pabulum passing in from without. Practical advantage is taken of the permeability of enclosing membranes of organisms when staining for the microscope, and I wish here to emphasise its clinical importance. Antimony tartrate kills the myracidium lying in the bilharzia ovum; after a few grains have been injected for bilharziasis the ova are very difficult to find in the urine, having apparently been arrested in their progress to the lumen of the bladder. This arrest is not easily explained if the ova are merely foreign bodies embedded in the tissues acting simply as such; if they were, they would behave in the same way before and after injection. Normally they are apparently vital bodies, having automatic action; it seems that only when the motor machinery inside the myracidium is killed by the antimony tartrate does it become a foreign body simply.

To return to the case of kala-azar under discussion. The enlarged spleen and liver did not satisfactorily diminish under A.T. injections alone; 10 gr. of quinine were therefore given every morning from 25/5/18 to 11/7/18 (47 days).[10] Quinine was apparently necessary to this end; 10 gr. of quinine daily were given by mouth for 47 days, after which the spleen could not be felt, and the liver was not enlarged to percussion and palpation. Administration of quinine, together with injections of A.T., is thus advisable in kala-azar, when the spleen and liver do not satisfactorily diminish in size.

In bilharzia, kala-azar, and I believe also in trypanosomiasis, the initial effect of injecting antimony tartrate is a marked increase in constitutional disturbance, shown in bilharzia by increase of blood in the urine and aggravation of the local symptoms, in kala-azar by the rise in temperature often to 106 or 107, and in sleeping sickness by aggravation of symptoms. The first effect of intravenous injection of antimony tartrate is, therefore, to provoke the disease by liberation of toxins into the circulation. Later, as the blood stream becomes more laden with antimony, the parasites are killed. This point of view is supported[11] by the initial increase of eosinophilia in bilharziasis during the course of injections; the differential count of the white blood cells afterwards becomes normal. (The large mononuclear cells also increase when antimony tartrate is injected in bilharzia.)

Summary.

To sum up. Experience seems to show that a few grains of antimony tartrate (5–8 gr.) by intravenous injections may be sufficient to cure leishmaniasis of the skin,[12] more (20–30 gr.) are necessary, as a rule, to bring about a cure in bilharziasis, and still more (60 gr., perhaps, and more) are necessary for leishmaniasis or kala-azar, and possibly still more (probably in repeated courses) for the cure of trypanosomiasis.

Antimony tartrate (pot. or sod.) when given intravenously in appropriate dilution and administered with care may be given in larger total doses than is generally supposed.

The blood, considered as a tissue, is probably capable of withstanding more physical and chemical ill-usage than any other organ; but owing to its structure and distribution it is obviously incapable of resisting micro-organic invasion, and is the logical route for direct attack upon micro-organic and other diseases, particularly those of the blood stream itself.

The cure of parasitic diseases, such as bilharzia, kala-azar, trypanosomiasis, filariasis, dracunculus medinensis, by a drug given intravenously (the drug itself if it acts directly, or a derivative if it acts indirectly) depends on: (1) the permeability of the enclosing membrane (or skin) of the parasite; (2) the penetrating power of the drug which in turn depends on its physical condition or chemical structure; (3) the toxicity of the drug to the parasite.

[9] Although L.D. bodies may be found plentifully in spleen and liver smears, they are hard to find in the peripheral blood of a patient, in spite of the fact that the splenic blood-vessels communicate freely with the systemic vessels. Possibly they disintegrate when they find themselves in the peripheral circulation.

[10] The boy came from Cinga on the Blue Nile; possibly he had chronic malaria, although no malaria parasites were found in the blood.

[11] It is also supported by the temperature curve in kala-azar during the course of injections. Follow the chart published.

[12] Provided that the sores are not secondarily infected with a staphylococcal or streptococcal infection; otherwise they will not heal so soon, although the leishmanic infection will clear up.

THE OUT-PATIENT TREATMENT OF BILHARZIASIS,

WITH AN ANALYSIS OF 1000 CASES.

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THE war-time discoveries of the Bilharzia Mission under R. T. Leiper, and of J. B. Christopherson, N. H. Fairley, and others concerning the early signs of infection, the life-history of the parasite, and a specific remedy against it, have rendered possible a campaign against the ravages of the disease in Egypt. Since bilharziasis affects no less than 80 per cent. of the agricultural population in this country, it is evident that preventive measures must depend largely for their success on the awakening of an intelligent knowledge of the disease among the peasantry. It is hoped that by systematic instruction in the schools and by exhibition of posters and kinematograph films public interest will be aroused to the possibility of avoiding worm diseases and other infections and to the necessity of early treatment for curable maladies.

As a preliminary to work on a wider scale, it appeared desirable to test the methods of treatment advocated for bilharziasis, with a view of learning their possibilities and limitations. Experience soon showed that in-patient treatment was impracticable for most patients. The pressure on hospital beds prevented the admission of any but severe and complicated cases, and the average Egyptian would not stay in hospital unless seriously incapacitated. To overcome this difficulty permission was obtained from the Department of Public Health to erect a tent annexe at Kasr-el-Aini Hospital for the out-patient treatment of bilharziasis and ankylostomiasis. The particular subjects for investigation were twofold: (1) to test the practical value of out-patient treatment of bilharziasis as regards the attendance of patients and the efficacy of routine treatment; (2) to find the best methods of specific treatment and the minimum dosage and attendance necessary for the average case.

The annexe was opened in December, 1919, and put under the immediate charge of successive clinical assistants. To these doctors I am deeply indebted for all the clinical work and for invaluable assistance in the examination of the microscopic specimens necessary for scientific control. The annexe consists of marquee tents, pitched inside the hospital square, and arranged in two sections, male and female. They are provided with stretchers (on trestles) and blankets, and latrine accommodation is attached. A central marquee serves for examination and treatment. Each patient receives a numbered attendance card, which corresponds to a page in the registers in which all particulars are entered. At each visit a specimen of urine (or stool if indicated) is obtained and its appearance noted,

while at appropriate intervals the specimen is kept for microscopical study.

Analysis of Cases Treated.

Number of patients.—The annexe has been well patronised from the start, being supplied from the numbers of bilharzial patients presenting themselves in the out-patient departments. From 100 to 200 new patients are seen every month, as is shown in the following table:—

1919.		Feb. ...	94	June ...	92*	Sept. ...	231
Dec. ...	44	March ...	111	July ...	174	Oct. ...	162
1920.		April ...	136	August..	124†	Nov. ...	169
Jan. ...	66	May ...	139				

* Ramadan Fast. † Bairam Holiday.

These numbers are exclusive of 115 ankylostoma patients also treated at the annexe during the last nine months.

For analysis the first 1000 cases have been taken:—

Sex.—There were 897 male and 103 female cases.

Age.—Patients were of all ages, ranging from 2½ years to over 60. 118 were children not exceeding 10 years of age.

Types of infection.—The great majority of patients were suffering from urinary disease, as is shown below:—

Bladder infection ...	875*	Bladder and intestine	29
Intestinal	26	Urethra only	1
Total			931

* Of these 111 were complicated by septic cystitis, 4 by fistula, and 2 by filariasis.

In addition, one case of chyluria (filarial) was also treated.

Selection of cases.—Only patients with active infection are suitable for specific treatment. The passage of blood at the end of micturition, or of bloody mucus with defæcation, is the usual clinical sign, and the diagnosis must be made by finding living bilharzia ova on microscopical examination. So long as living ova are present, the existence of secondary bacterial infections of moderate degree is no bar to successful treatment. But patients with advanced disease often present the signs of septic cystitis, and frequently pyonephrosis, while no ova, or only a few dead ova, are found on thorough examination. In such cases antimony treatment is useless, and therefore prejudicial to the reputation of the drug.

Contra-indications.—The chief of these, other than that above mentioned, is severe cardiac, arterial, or renal disease. Even a fairly advanced degree of hepatic cirrhosis need not be a deterrent, but doubtful cases are unsuited to out-patient treatment, and, indeed, cannot attend properly. We have also avoided giving antimony injections during pregnancy. On these grounds 68 out of the 1000 cases were rejected as unsuitable. Two bilharzial patients were admitted to the wards on account of their bad general condition, and two of the women were advised to wait until the termination of their pregnancy. Twenty-eight patients were rejected on account of advanced bladder and kidney disease, with no evidence of active bilharzial infection. The remaining 36 patients were found to be suffering from other diseases and not from bilharziasis.

Subsequent attendance.—One-third of the patients ceased attending after one to three visits, being unwilling or unable to continue treatment. Several returned later and took a full course. These return cases are omitted in the following table, which shows the total amount given in the ordinary way:—

Less than 5 gr. ...	313 patients.	20–25 gr. ...	55 patients.
5–10 ,, ...	215 ,,	25–30 ,, ...	84 ,,
10–15 ,, ...	146 ,,	Over 30 ,, ...	19 ,,
15–20 ,, ...	92 ,,		

Four patients refused injections; four others were treated by injections of colloidal antimony only.

On the whole these figures are satisfactory. Many of the patients had little disease, and to that they were well inured, so that the duration and inconvenience of the necessary treatment deterred them from continuing their course. A large number of patients ceased their visits as soon as their symptoms were relieved, as usually occurs within a week or two of commencing treatment. On the other hand, most patients with septic cystitis as a complication were diligent in attendance, though little benefit could be procured. The remainder, a considerable proportion, persevered and took as many injections as were deemed necessary.

Method of injection.—For good and rapid work a full light, a handy assistant, and a sharp needle on a glass syringe are needed. The requisite quantity of a 6 per cent. solution of tartar emetic (1 gr. in 1 c.cm.) is drawn up into the sterile syringe followed by some c.cm. of sterile saline. The patient lies on an operating couch with his arm extended and supported on a small three-legged table, with a Δ-shaped top, whose base abuts against the couch. The skin in front of the patient's elbow is swabbed with alcoholic picric solution by the attendant, who then grasps the arm above, while the patient clenches his fist to distend the veins. As soon as the needle has been shown to lie truly in the lumen of the vein by the free entry of blood, the attendant relaxes his hold and the injection is made. The patient then holds up his arm to arrest any bleeding and goes out to rest in the adjoining tent. The injections are given in the middle of the morning when the stomach is fairly empty and the drug has least untoward effect. Special care is necessary in making the injection, since tartar emetic is a most irritating compound to the tissues and causes severe inflammation if introduced outside the vein.

Course of treatment.—To adults was given an initial dose of 1 gr., 1½ gr. the next time, and 2 gr. on each subsequent occasion. Not many out-patients could take a larger dose without suffering from persistent giddiness and often vomiting. Young women and youths generally took 1½ gr. as a full dose, and it was found that many children could tolerate this amount. The injections were given as a rule on alternate days. Many patients were somewhat irregular in attendance and received only two, or even one, injection per week. The duration of treatment was controlled by observing the effect on the ova.

Examination of ova.—The urine is allowed to stand in a specimen glass; its appearance and the nature of any deposit is noted. The lowest layer is then transferred to a centrifuge tube and washed by centrifuging and shaking with successive quantities of water. Since the ova are relatively heavy they are brought down by a few turns of the handle, while most of the blood and pus corpuscles are left suspended, and can be poured off with the supernatant fluid. The sediment is finally transferred by a pipette to a shallow glass cell affixed to a microscope slide. By filling the cell above its brim and dropping on a cover-glass air bubbles are avoided and evaporation retarded, if it is desired to postpone examination until living miracidia have hatched out. Half an hour in an incubator at 37°C. will hasten matters in cold weather.

Under regular treatment by tartar emetic the phenomena outlined by Christopherson[1] occur as follows:—

(*a*) By the end of the first week there is a noticeable diminution in the amount of blood and number of ova passed in the urine. In mild cases blood is no longer visible to the naked eye.

(*b*) About the ninth day the ova begin to hatch out more slowly; the miracidia are less active and die quickly.

(*c*) By the end of the second week a considerable proportion of the ova fail to hatch. The shells of these ova are distended as usual by imbibition of water, but the enclosed miracidia show little or no movement. Small immature ova are frequently seen whose contents appear brown and granular instead of a translucent clearness.

(*d*) During the third week the toxic effect of the drug becomes very evident. The few miracidia that hatch out are usually globular in shape, move very sluggishly, and soon die in distorted shapes. Most of the ova no longer swell in water, while the delicate and refractile structure of the contained miracidium becomes obscure and granular. Death of the embryo is followed by a deepening opacity; the contents of the shell become brownish, and ultimately black, by transmitted light. This change occurs first in the cells and granules around the embryo, and later in the degenerated miracidium itself.

(*e*) By the end of the third week or during the fourth all the ova are dead, most being black. These black ova are often passed in masses held together by mucus. As many as 200 to 300 may sometimes be found in a specimen of urine even a month or longer after the conclusion of treatment, but in most cases the ova become scanty and difficult to find.

Similar phenomena are found in the case of intestinal disease due to the *Bilharzia mansoni*, with its lateral-spine ova and slightly larger miracidia. It should be borne in mind that ova left in contact with fæces or

alkaline urine perish quickly, and so often fail to hatch on the subsequent addition of water. Also, that rough handling will rupture the shells of ova whether dead or alive, so that the finding of an empty shell is no proof of a living embryo. A preliminary search of the specimen before the ova have time to hatch naturally will obviate this error.

Immediate results.—The effects of injections on the ova are shown on the charts in diagram form. The curve shows the percentage of dead ova present, not the total numbers, and the figures beneath record the dose in grains of each injection. Chart 1 illustrates a typical case. When injections are given at long intervals the effect is delayed, as is well seen in Chart 2. To secure a quick result it is important to raise the concentration of antimony in the circulation by giving frequent injections in the first week. Chart 3 records the results in three patients of identical weight, who received different amounts of the drug during this period. In each case eight days elapsed before any definite effect was observed, but the subsequent progress varied in rate of cure. Occasionally one can observe the effect of one or two doses only, which is characteristically transient (see Chart 4). Now chemical analysis of the urine of patients has shown that the excretion of antimony is maintained for some two or three weeks at a high level after the termination of a full course of tartar emetic.[1] This fact, coupled with the special influence of an early concentration of the drug on the ova, made it appear possible to obtain the curative effect of the remedy by quite a short course of treatment, thus taking advantage of the cumulative action of antimony. On trial this method was found to succeed, four or five injections (a total of 8 to 9 gr.) being sufficient to kill the ova if given in the first ten days or so, and their effect looked for at the expiry of the usual interval—about a fortnight later (see Chart 5).

Late results.—Further experience proved that this short course was unsatisfactory, since re-examination two or three months later showed the recurrence of living ova in patients who had not been exposed to reinfection. Few adult patients appear to have been permanently cured by a smaller dose than 13 gr., although the number of ova may be very greatly reduced when seen some months afterwards. The occasional finding of a living ovum after a full course of treatment may be explained by the survival of ova which have possibly been protected against the influence of the drug by lying enclosed within a giant cell, as is not infrequent. But the reappearance of living ova in increasing numbers can only mean the presence of living worms. Hence we may conclude that the primary effect of antimony in bilharziasis is the destruction of the ciliated embryos within their shells, and that the parent worms require a larger lethal dose. This result is more in keeping

In the following Charts the Curve shows the Percentage of Dead Ova present on Examination of the Urine (reading from the left). The figures beneath record the Dose in Grains of each Injection.

Day of treatment.

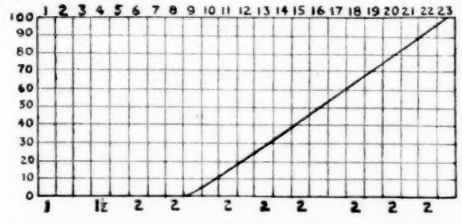

CHART 1.—Male, age 22, weight 10 st. Bilharzia of bladder 15 years, of intestine 1 year. Treated with tartar emetic (intravenous injections).

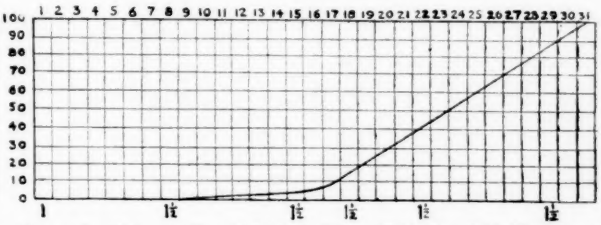

CHART 2.—Girl, age 11, weight 5 st. 1 lb. Bilharzia of bladder 1 year. Treated with tartar emetic (intravenous injections).

Day of treatment.

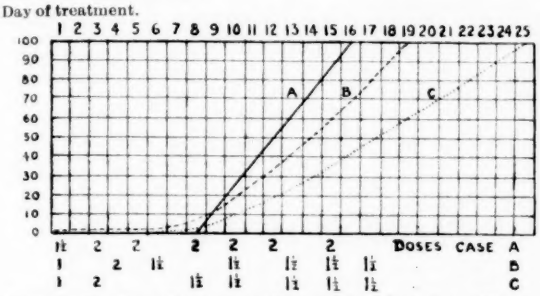

CHART 3.—To show the comparative progress in three patients with bilharzial disease of bladder. Ages 19 to 26, weight of each 9 st. 9 lb. Treated with tartar emetic (intravenous injections). In spite of the small total dose permanent cures were obtained.

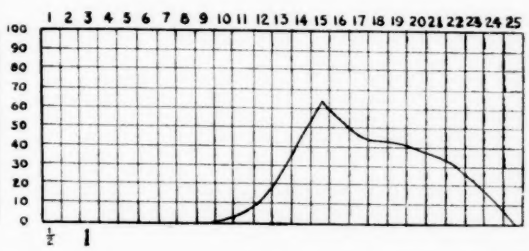

CHART 4.—Boy, age 7, weight, 2 st. 12 lb. Bilharzia of bladder 15 months. Treated with tartar emetic (two intravenous injections).

Day of treatment.

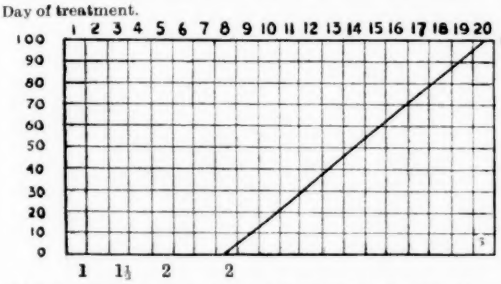

CHART 5.—Male, age 21, weight 9 st. 12 lb. Bilharzia of bladder 10 years. Treated with tartar emetic (intravenous injections).

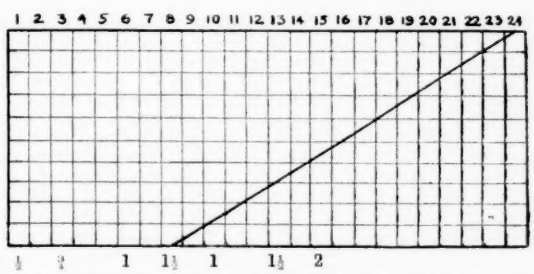

CHART 6.—Girl, age 8, weight 3 st. 13 lb. Bilharzia of bladder 5 months Treated with emetine (intramuscular injections).

[1] This fact was first observed by Dr. Leonard Rogers, I.M.S., and has been confirmed by Dr. Christopher Addison, Dr. Andrew Balfour, and myself.

with the experience of Sir Leonard Rogers[2] (which we have confirmed), that in the treatment of filariasis a large amount of antimony is necessary to reduce permanently the numbers of microfilariæ in the circulation. The bilharzia worm can be found alive in the portal vein for many hours after the death of the patient from toxic diseases, and on experiment is found to resist quite considerable concentrations of antiseptics. Leiper and Christopherson inform me that they believe the bilharzial ovum is endowed with the power of digesting its way through the tissues. Hence the reduction of the hæmaturia and number of ova passed in the first week of treatment may be explained by a functional disability of the miracidia preceding their death, and not necessarily by a similar effect on the egg-laying worms.

Optimum dose.—For adults we may place the minimum effective dose at about 13 gr., but a larger amount is generally necessary. For considerable variations are observed in the amount of antimony needed to cause permanent disappearance of living ova. Thus two brothers, aged respectively 13 and 17, attended the annexe together and received the same number of injections. The elder received a total of 28½ gr., and six weeks later his urine was found to contain a very few dead ova. The younger received 19½ gr., but had a more severe infection, and six weeks after the course was terminated a specimen of urine contained seven living and two dead ova. A specimen before treatment contained some hundreds of living ova, so that treatment could not be considered a failure. Even a total of 25 to 30 gr. has not uniformly succeeded in permanently banishing living ova. It is probable that the effect of treatment depends to some extent on the condition of the worms and the ova present. An adult with disease contracted in childhood who has not been exposed to reinfection for years may need a smaller dose for his cure than would another patient recently infected with vigorous parasites. This theory may explain why 12 gr. can cure one case, while double that amount may be needed for another patient of similar size.

As the result of our experience with out-patients the following course is recommended for an adult:—

1st week:	Daily injections ...	1	1½	1½	2	2	2	2 gr.
2nd ,,	Injections ...		2		2		2	,,
3rd ,,	alternate days ...		2		2		2	,,

The amount of each dose is regulated by the size, condition, and tolerance of the patient. Under this system the usual course for an adult totals 24 gr., and the omission of one or two doses owing to irregular attendance will hardly affect the result.

The urine is examined at the end of the course and again after a week, when a further course can be given in the unlikely event of ova surviving. The patient should report about three months later.

Complications.—Specific treatment is of great value before operations are undertaken for the closure of urinary fistulæ or excision of polypi, &c., complicating bilharziasis. Thus F. O. Lasbrey and R. B. Coleman[5] at the C.M.S. Hospital, and the members of our own surgical staff, find that post-operative healing is vastly accelerated in such cases once the causative infection has been removed. About 10 per cent. of our cases of urinary bilharziasis are complicated by a secondary septic cystitis. If the amount of pus present is quite moderate the cystitis generally disappears after the ova are killed, but a severe cystitis is hardly affected, though hæmorrhage usually ceases.

Treatment by other drugs.—The effect of other remedies has been tested and new preparations are on trial. Colloidal antimony is effective, but the ampoules only contain about 2 c.cm., a dose which is only successful in quite small children, adults requiring 5 to 10 c.cm. each injection. This preparation has the great advantage that it can be given by intramuscular injection. Emetine in large doses has been found effective by Diamantis[3] and A. Erian,[4] and we have confirmed their results. The remedy is best given intravenously, as a large dose is irritating to the tissues. The dose is from ½ to 3½ gr. for each injection, according to the weight and tolerance of the patient, and the course is similar to that for tartar emetic. Chart 6 illustrates the effect on the ova produced by a course of emetine. The high cost of emetine militates against its routine use for out-patients. But it is a most useful alternative to use under certain conditions, viz.: (*a*) for young children or others whose veins are too small or inconspicuous for intravenous injections; (*b*) for patients who exhibit an intolerance for tartar emetic or where an error in technique has resulted in abscess; (*c*) for cases of bilharzial dysentery complicated by amœbiasis.

Ankylostoma Patients.

Cases without severe anæmia have been treated as out-patients in the annexe. The patient is instructed to come fasting in the morning but to bring some food with him to be taken after treatment. He is accommodated on a stretcher and is given 10 drops of oleum chenopodii on sugar at intervals of one and a half hours until three doses have been taken. One hour later he has a dose of castor oil. Before he leaves he has his food and is given a bottle of iron and arsenic mixture to take home. The treatment is repeated in three days and the stools re-examined after a fortnight.

For the detection of the ankylostoma ova in the fæces the flotation method has proved most convenient and satisfactory. A small portion of fæces is emulsified in a little water and poured through a coarse strainer into a small flask of conical shape, narrowing to the neck. (A small bottle with sloping shoulders and a wide mouth does equally well.) The flask is then filled to the brim with a saturated solution of common salt in water and left to stand for a few minutes. Portions of the surface film are then taken up by means of a wire loop dipped under the surface and transferred to a slide for microscopical examination. The ova are found concentrated in this surface film, and can be identified with the greatest ease.

Work in the Provinces.

The success of the special annexe at Kasr-el-Aini led the Department of Public Health to open similar establishments in connexion with three provincial hospitals

An Egyptian poster heading designed to inculcate the danger of water-borne disease. The Arabic words above the picture signify, reading from right to left:—

The prevention of { Anæmia (Ankylostoma) and Hæmaturia (Bilharzia).

in the Delta last summer. These annexes have proved very popular, and their usefulness has been enhanced by the local exhibition of posters, by public lectures, and by the distribution of leaflets. I am indebted to Colonel Garner, Under Secretary of State, Department of Public Health, for permission to reproduce the illustrated heading of one poster, which draws attention to the danger of infecting water.

Conclusions.

1. The out-patient treatment of bilharziasis on a large scale is practicable and successful. 2. Due selection of cases and great care in giving the injections is necessary. 3. The primary effect of antimony is on the ova. 4. A full course of tartar emetic or alternative drug is required to secure a permanent cure in most patients. 5. Colloidal antimony and emetine are useful substitutes for tartar emetic when occasion demands. 6. Curative treatment must be combined with the widest measure of public instruction if the incidence of the disease is to be lessened.

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MOSQUITO-NETS: THEIR USE IN THE PAST.

BY SIR PATRICK HEHIR, K.C.I.E., C.B., C.M.G., M.D.,
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SOME months ago a very useful book on tropical medicine was reviewed in THE LANCET.[1] In tracing the history of malaria in that work it is stated, inter alia, that mosquito-nets were first used in India in 1881. I would ask the author's permission to allow me to correct this statement. The mosquito-net is much more venerable in India. We have it on record by Surgeon-Major (afterwards Sir James) Annesley, I.M.S., in his "Diseases of India," that mosquito-nets were used as a protection against mosquitoes by Europeans as early as 1828, when his book was published, and possibly they were used at an earlier date. They were then employed, Annesley tells us, to prevent the physical discomfort caused by the bites of mosquitoes, to exclude the "miasmata" that were supposed to give rise to malaria, and to "prevent chills from the night dew." Where the author of the first book referred to above got his date from I do not know; the practical application of Sir Ronald Ross's discovery of the direct relation of mosquitoes to malaria did not form part of routine life in India until the beginning of the present century.

Long before the discovery of malaria parasites by Laveran in 1881 nets were in use in several tropical and subtropical countries. We have it on record as a historical fact that almost a century ago some of our generals and sportsmen in India attributed their freedom from disease to the using of mosquito-nets. I can personally remember mosquito-nets being in use at Poona, Mhow, and Nasirabad when my father's regiment, "The King's," went out to India in 1868; their use was not general at that time, and they were not issued to British troops as they are now.

The native of India has always used his *chadar* (sheet) or other covering when asleep to protect himself from the attacks of mosquitoes. Even in the hottest weather we find him covering his head and exposed parts of his body with such a garment. I dimly recollect being told or reading somewhere that the Singhalese several centuries ago used some form of a net or covering to protect themselves from mosquitoes. I regret I cannot recall the reference.

Probable Early Antimalarial Measures.

It is possible that if we could ferret out the whole history of the mosquito-net we might find that through the ages the inhabitants of countries infested by mosquitoes have used some sort of protection against their attacks, either in the form of nets or covering, or as applications to the surface. The habit of anointing with scented oils practised by the Babylonians and other ancient Semitic nations may not have been without its purpose in repelling the attentions of insect life. The Tigris and Euphrates valleys must have been a paradise for insect life from time immemorial. One can never forget the appalling pestilence of insects that invaded the 6th (Poona) Division during the first week of June, 1915, at Ezra's Tomb on the Tigris, a place between Basra and Amara. We have the authority of history indicating that some form of mosquito-net was in use thousands of years ago by Egyptians, Greeks, and Romans.

Herodotus and Mosquito-Nets.

A few months ago I was reading Cary's English version of Herodotus and came across an interesting paragraph in this connexion (II., p. 94). Writing of the Egyptians who dwelt on the banks of rivers, lakes, and marshes, Herodotus says:—

"They have the following contrivance to protect themselves from musquitoes (*sic*), which abound very much. The towers are of great service to those who inhabit the upper parts of the marshes; for the musquitoes are prevented by the winds from flying high; but those who live round the marshes have contrived another expedient instead of the towers. Every man has a net with which in the day he takes fish, and at night uses in the following manner: in whatever bed he sleeps, he throws the net around it, and then getting in, sleeps under it; if he should wrap himself up in his clothes or in linen the musquitoes would bite through them, but they never attempt to bite through the net."

One imagines that the Egyptian fisherman had either great faith in the protection afforded by his net, or he had more confidence in the guilelessness of the genera of mosquitoes inhabiting his neighbourhood than we now entertain as regards mosquitoes of tropical and subtropical countries.

The Roman Conopeum.

History likewise tells us that the *conopeum*, or mosquito-net, was used by the Romans. In an admirable résumé of this subject Sir Ronald Ross[2] quotes Varro, Horace, Propertius, Juvenal, and Paulus Silentiarius as referring to the mosquito-net, and tells us that Horace says: "And among the military standards, oh shame! the sun sees a mosquito curtain," and that Propertius calls these nets *foeda* (foul or disgraceful); it may be supposed he meant that it was unmanly for the hardy Roman soldier to indulge in the use of such protection against gnats. Personally, I feel that the man who devises a practicable and portable means of protecting troops who are fighting in endemic malarial areas from the attacks of mosquitoes will deserve the highest commendation.

The Possibility of Complete Protection.

The well-known experiment of Drs. G. C. Low, L. W. Sambon, and D. Rees, carried out in the Roman Campagna in 1900, proved beyond all equivocation that if the body is protected from the attacks of anopheles one may live in even the worst endemic malarial areas without becoming infected. If I remember rightly, Professor J. W. W. Stephens and Lieutenant-Colonel S. R. Christophers, I.M.S., found the same to be the case in their malaria work in the West Coast a short time afterwards.

In quite recent times one has often been asked seriously by civil servants, military officers, and other educated people in India whether mosquitoes really carried malaria. If some of the better classes entertain doubts of this kind, it is scarcely to be expected that the poorer, uneducated classes in India, including the village ryot, knows what a danger to his health the mosquito is. Yet we require the coöperation of all classes in the reduction of malaria. This points to the necessity of educating the people of India, especially the agricultural population, in the first principles of prevention, and to the fact that for many years to come we should patiently and persistently diffuse this knowledge by propaganda, placards, leaflets, lectures, magic-lantern, microscopical, and kinema demonstrations and other means. I gave lectures of this kind for years to various garrisons and other audiences in India.[3] They were usually associated with magic-lantern slide demonstrations of the different forms of adult anopheline and culicine mosquitoes, their larvæ and eggs, malarial parasites in the stomach walls of anophelines, in the blood, and of patients suffering from malarial enlargement of the spleen and malarial cachexia, and taking

[1] Essentials of Tropical Medicine, by Dr. Walter E. Masters, THE LANCET, 1920, ii., 406.

[2] The Prevention of Malaria, p. 5.

[3] Popular Lectures on Malaria in India (Higginbothams, Ltd., Madras).

the classes or audiences to pools containing larvæ and eggs, and showing where adult mosquitoes hid in houses and huts during the daytime.

Prospects of Reduction of Malaria in India.

Even in the most advantageous educational circumstances it will be many years before the poorer classes in India give their whole-hearted coöperation to antimalarial measures. The task of the antimalarial worker in India is so immense that it may sometimes seem too formidable to tackle, but I am convinced that eventually, it may be a generation or so hence, persevering effort will bring about a reduction of malaria. We know how it has been greatly reduced in a large number of cantonments, both in India and Burma; this has only been achieved by the continuous and persistent effort of a host of enthusiastic medical and military officers and engineers who had faith in the results of their work; were there to be any relaxation of antimalarial measures in garrisons our troops would soon be as seriously affected with malaria as they used to be antecedent to the discovery of the relation of anopheles to the disease.

In drawing attention to the history of mosquito-nets I should like to say that personally I do not consider their use the real solution of protection from adult mosquitoes. Lakhs of rupees are spent annually on them, and even when employed with care their life is seldom longer than three years. The universal introduction in endemic malarial areas of wire-gauze mosquito-proof material into all permanent buildings is much more efficient, and eventually much more economical, than ordinary mosquito-nets. There should be no difficulty in insisting that all new buildings are provided with such wire protection.

TREE-BREEDING ANOPHELINES.

BY B. BLACKLOCK, M.D. EDIN.

(*From the Liverpool School of Tropical Medicine.*)

DURING the war a case of indigenous malaria was reported from Belton Camp, Grantham. Professor J. W. W. Stephens, Lt.-Col., R.A.M.C., examined the camp on Sept. 29th, 1917, and found there at one spot, somewhat remote from the lines where the case was, larvæ of *A. bifurcatus*. A. Macdonald [1] found *A. maculipennis* adults in small numbers in stables and pigsties near Belton Park in July, 1918, and quotes a statement that *A. maculipennis* larvæ had been discovered at Belton in August, 1917, by Stephens. In January, 1921, I went to the site of this camp and found, in a pond across a road from the lines where the case occurred, numerous larvæ of *A. bifurcatus*, and also a few in a ditch near the boundary fence of the camp. The pond and ditch when examined by Stephens yielded no anopheline larvæ. Turning attention next to the trees I discovered within a short period cavities containing water in an oak tree in the centre, and in a Spanish chestnut tree at the top, of the lines in which the malaria case occurred. In the pooled fluid siphoned off *A. plumbeus* larvæ were found in numbers, and also larvæ of *O. geniculatus*. My visit was undertaken at Stephens's request, as he was not satisfied that his discovery of *A. bifurcatus* larvæ in 1917 was adequate proof that this was the probable carrier. At the time of my visit the camp buildings had been removed, and with them apparently the pigsties and stables referred to by Macdonald, as I saw no sign of them. The Belton Camp country contains very fine old trees in large numbers, and would at a glance be chosen as a place in which *A. plumbeus* should easily be found. There is no evidence that *A. maculipennis* was the carrier in this instance, and any statement which assigns to it the rôle of transmission here must obviously be based on the assumption that *A. maculipennis* is the only anopheline which is worthy of consideration in this country. That such an assumption is hardly justifiable will, I think, be admitted when the subject is considered more fully.

The object of the present paper is to draw attention afresh to the necessity of taking tree-breeders into consideration, and to urge the view that even with our present limited knowledge of their powers of transmission they constitute a factor which must not be ignored, whether in making anopheline surveys or in dealing with anophelines from the sanitarian's standpoint.

Habitual and Occasional Tree-breeders.

The true tree-breeding anophelines comprise those which breed normally in trees. They are represented in America by *A. barberi*, Coq., in Europe by *A. plumbeus* Steph., and in India by *A. plumbeus*, *A. annandalei*, Prashad., and *A. culiciformis*, Cog. All these species breed in rot holes and cavities in trees, and although there have been occasional records apart from trees (there is a single record by F. V. Theobald of *A. plumbeus* in a peat bog, and H. Cogill,[2] 1903, states that *A. culiciformis* has been found breeding in forest puddles or pools) they show little or no adaptation in this respect. The South American bromeliaceous species—e.g., *A. lutzi*, &c.—are, like the tree hole breeders, limited to such habitats. The occasional tree-breeding anophelines include *A. costalis* and *A. eiseni*, which normally breed in ground waters, and it is not yet established to what extent they may acquire the habit of breeding in true rot holes which are little exposed or at high levels in trees.

The amount of importance attached by observers to those anophelines which breed in trees has varied in such a degree at different periods and in different countries that it appears opportune to reconsider the subject. R. Ross [3] recognised early the importance of the tree factor, and that in prophylactic measures tree breeding-places should be considered. In a footnote to certain clauses which he drafted with a view to embodiment in the local ordinances of Mauritius he states:—

"Some specific provision ought to be made to enable the sanitary authority to fill up with concrete, or otherwise to treat, holes and hollows in trees which breed, or are likely to breed, mosquitoes. Similar recommendations have been made in various countries and districts by the authorities."

C. F. Lasalle,[4] in his conclusions to his Report on Trinidad and Tobago, emphasises that what is to be aimed at in the elimination of malaria is to free all towns, villages, and inhabited portions of estates, as well as a surrounding area within a radius of not more than a quarter of a mile of all permanent or potential mosquito breeding-places. It is noteworthy that in his detailed instructions to inspectors the following occurs:—

"Every collection of water, and every receptacle liable to contain water (holes in trees, water-retaining plants), should be carefully examined."

Macdonald, on the other hand, dealing with indigenous malaria in England and the mosquitoes which are responsible for it, in his paper of 80 pages devotes only half a page to *A. plumbeus*, which is a tree-breeding anopheline occurring in the British Isles.

Some Reasons for the Neglect of Tree-breeders.

If we take *A. plumbeus* as a type of the tree-breeding mosquito, we can quote the following, among other reasons, why they are not regarded seriously. The question arises whether these reasons justify the relative neglect of this species and others of similar habits.

(1) They do not appear to be numerous. There is a considerable array of evidence to show that the anopheline which is most numerous in any locality may be relatively harmless as regards transmission of malaria, while one which is much less numerous may cause real damage. Ross [2] mentions as an instance—

"as we showed in the case of *Myzorhynchus mauritianus*, a species may abound in a malarious locality, although the disease is really being spread by quite another one."

(2) They do not appear to be domesticated mosquitoes in the sense that they commonly enter houses for the purpose

[1] Macdonald, A., 1919: Observations on Malaria by Medical Officers of the Army and Others, War Office, p. 226.

[2] Cogill, H.: The Anopheles of Karwar, Jour. Bombay Nat. Hist. Soc., vol. xv., No. 2, Oct. 28th, 1903.

[3] Ross, R., 1910: The Prevention of Malaria, pp. 191 and 636.

[4] Lasalle, C. F., 1920: Report on Anopheline Survey of the Colony of Trinidad and Tobago.

of biting man and remain in houses after biting. The test of domesticity in this sense is liable to lead to error, because we have very little evidence to show that only those anophelines are important which choose to enter houses for food and remain there after feeding. The fact that a species—e.g., *A. rossii* in India—is commonly caught in houses and is obviously domesticated is not in itself sufficient to warrant an assumption that a species which is not thus domesticated has little importance as a carrier of disease. Christophers[5] has shown that females of *A. plumbeus* gorged with blood retire to the tree holes, which, besides forming ideal breeding-places, are also safe and dark resting-places for engorged females. We know that *A. plumbeus* will feed on man at any hour with the greatest avidity, in laboratory conditions, when enclosed in feeding cylinders, and also when allowed to fly free in a mosquito-proof room. Further, Christophers ascertained that females in nature enter houses and bite freely in the mornings and evenings, but more especially in the mornings. We know also that the bite of *A. plumbeus* is, to many people at least, so little painful that it is often difficult to feel the bite, whereas both *A. maculipennis* and *A. bifurcatus* usually leave no doubt in the mind on this subject. For these reasons it is clear that without being domesticated in the sense mentioned above, this species of anopheline may play a part in nature in the transmission of malaria.

(5) They are not known to carry in nature. To refer again to the War Office work, it may be said equally of the other two species that they are not known naturally to have salivary gland infection in England. It may be said, further, that in laboratory experiments done in England with the three British anophelines, only one has so far been proved capable of developing malaria sporozoites in the salivary glands, and that one is the tree-breeder *A. plumbeus*.

(4) They are sometimes difficult to find. This seems to be the real cause of their being ignored and depends to a great extent, in so far as the adults are concerned, on the foregoing considerations. There is reason to believe, however, that so far from their being a rarity, when looked for in a systematic manner, they will prove to be quite common everywhere in the British Isles. The fundamental difference between *A. plumbeus* and *A. maculipennis* appears to be that whereas an idea of the prevalence of the latter may be obtained without difficulty both in the aquatic stage and in the imago stage, the prevalence of the former can usually be estimated best in the aquatic stages. The estimation of their prevalence even from the aquatic stages is not an easy matter, as the following considerations show. Blacklock and Carter,[6] during investigations on the breeding-places of *A. plumbeus*, showed that in the examination of 2500 trees taken at random and tested up to a height of only 25 ft. breeding-places of this species were found 16 times. They draw attention to the fact that it is not sufficient to look for large apertures in trees visible at some distance, but that each tree must be most carefully scrutinised in order that small and inconspicuous holes may be discovered. In one Spanish chestnut, recently, an aperture of only 1 in. in diameter, situated at 7 ft. from the ground, gave admission to a large cavity containing numerous *A. plumbeus* larvæ. Branches of moderate size have presented small apertures which led into large cavities in the trunk containing larvæ of *A. plumbeus*; water-holes have been found at a height of 32 ft. from the ground. In view of these observations it is not overstating the case to say that no survey for anophelines and no measures directed against them are complete which do not take into consideration the tree-breeding forms.

Conclusions.

1. In a survey for anopheline mosquitoes in any area where trees, even in small numbers, are present, any forms which pass their aquatic stages in trees must be considered equally with the forms which pass these stages in the ground waters.

2. Without the information with regard to the tree-breeding anophelines the survey is incomplete and adequate remedial measures cannot be applied.

3. An examination of trees for the purpose of detecting possible anopheline breeding-places involves very close inspection of all parts of the tree and its larger branches to a level as yet not determined, but higher than 32 ft. from the ground.

4. Generalisation with regard to the rise or fall of malaria in any area (whether marshy or not) which contains trees may be very misleading if such effects on anopheline breeding-places as may result from tree felling, tree planting, and decay of trees are omitted from consideration.

[5] Christophers, S. R., 1916: Ind. Jour. Med. Res., vol. iii., pp. 489-496.

[6] Blacklock, B., and Carter, H. F., 1920: Ann. Trop. Med. Parasit., vol. xiv., pp. 115-126.

A CONTROLLED STUDY OF SANATORIUM RESULTS.[1]

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WHEN going over the results of sanatorium treatment which are so frequently published, the reader usually finds himself wondering what would have happened to these patients if they had not gone to a sanatorium. The present paper is an attempt to answer this question by comparing the after-results personally observed in 270 cases treated at sanatoriums with those in 597 cases treated by other methods. No research worker in physiology, or in any other field of science, would dare to draw conclusions without controls, yet the majority of our conclusions on the value of different forms of medical treatment are reached in this manner. There are, of course, notable exceptions, such as digitalis, antidiphtheritic serum, and vitamines.

In a prolonged discussion on the value of different treatments in pneumonia, which raged in the *British Medical Journal* some two years ago, most diverse remedies were praised, almost as specifics, by various writers, and the reader was led to ask himself what the mortality in A's and B's patients would have been if they had exchanged their specific remedies. Yet ample material to control our methods is at hand in the homœopathic hospitals and other institutions where some special line of treatment is followed. The surprising fact is that this has not already been done. Perhaps the General Practitioners' Association for Collective Research will one day take it in hand.

It must be admitted that Bardswell, in the report published by the Medical Research Council, points out the importance of a comparison of sanatorium results with the results of other forms of treatment.

Methods Employed.

In this inquiry the condition of 270 sanatorium cases two years after leaving the institution is compared with the condition of 597 controls two years after commencing treatment. This period is enough to allow the increase in weight and improved appearance manifest in most patients when they leave a sanatorium to have passed off, and gives a fair comparison. To gain further information, and to check the two-year results, a further series of 121 sanatorium cases, and 282 controls, is considered after a four years' period. The numbers are smaller because only cases seen personally have been considered, and sufficient time has not elapsed for me to follow up more cases for four years.

The controls were not sent to a sanatorium because they were unwilling or unable to go, because accommodation was not available, or because it was decided to keep them under observation for a while before sending them, and so avoid for them the sanatorium stigma.

The number of sanatorium cases lost sight of after two years is about 2 per cent., not sufficient to affect the result in any way, and I could, moreover, lay hands on reliable information about most of these, if time and energy allowed. Between the two and four years, another 1 per cent. may have been lost. Among the control cases rather more have been excluded for this reason, because visitors and other birds of passage are seen from time to time, but practically all the genuine Devonian cases can be traced.

A few words as to the method of classification are necessary.

When reporting on insured cases to the Devon Insurance Committee, in order to convey as accurate and intelligible a prognosis as possible to the lay mind, we express in percentages the prospect (*a*) of complete recovery, (*b*) of partial recovery, sufficient to allow the patient to resume his old work or some other employment, and (*c*), which applies only to those who are working, of continuing at the present work for a reasonable time.

[1] Being a paper read at a recent joint sessional meeting of the West of England Branch of the Society of Medical Officers of Health and the Royal Sanitary Institute.

Thus, in a slight case seen for the first time, one might well say "50 per cent. prospect of (*a*)"; in a worse case, when there seemed an even chance of a partial recovery, the prognosis would be "50 per cent. of (*b*)"; while in a working case, but with the health precarious and a breakdown possible at any moment, one might say "50 per cent. of (*c*)." Varying circumstances would, of course, raise or lower the percentage figures correspondingly. Now, in making our periodical returns to the county sanatorium about the condition of patients after discharge, this scheme is made use of and a number is placed against the patient's name as follows:—

Class 1.—Patient at work—90 per cent. prospect of (*c*) or more. (This may be considered a cure.)
" 2.—Patient at work, but health somewhat uncertain—60–90 per cent. prospect of (*c*).
" 3.—Working, but health precarious—40–60 per cent. of (*c*).
" 4.—Too ill to work.
" 5.—Very ill.

These numbers have been used in my classification of results. 1 and 2 I have bunched together, also 4 and 5, partly to simplify matters and partly to bring my results into line with other workers who classify patients as full work (1 and 2), part work (3), and no work (4 and 5).

A classification on the basis of "at work" or "not working" is not altogether satisfactory, as so much depends on the sort of work; a manual labourer may have to give in, whereas a clerk or artist, who is much worse, may easily continue at work. I have known a clerk in one case and a journalist in another who continued at work almost to the last. Such cases have been classed as (4) in one or two instances, even though the patient was working. Nearly every case is classified from a personal knowledge of his condition; once or twice only have I been satisfied with a postal inquiry; in a few more instances I have relied on a report from the patient's doctor or from relatives in a position to know. A postal inquiry is usually insufficient, a patient may report himself "very well" and yet be found on further investigation in Class (4).

The sanatorium cases were treated mostly at our County Sanatorium, but a good many elsewhere. The treatment adopted was modern sanatorium treatment—fresh air, good food, and graduated labour. Several different medical superintendents were concerned. The treatment of controls was for the most part advice only. Some continued for the whole period under their doctor, but the majority were only occasionally seen by him, and many not at all.[2] Not more than one or two had tuberculin treatment, a few had special treatment of different kinds such as I.K., and others tried patent remedies. I have never been angry or ceased observing a patient because he was under "Dr." Stevens or "Dr." Alabone; but it must here be said that for a tuberculosis officer to keep all patients under observation requires more tact and perseverance than to keep patients in private practice. Patients who left the sanatorium under a month are counted as controls; there are only a few of these.

Stages of disease.—Three stages are recognised: (1) slight; (2) medium; (3) extensive. Very few Stage 3 cases were sent by me to a sanatorium, but a good many are found among the controls, because all those of whatever stage are included who might *arguably* be considered as suitable for a sanatorium. I have cut out, on the one hand, moribund and bedridden cases, obviously too ill to be sent, and, on the other, cases of old arrested disease calling for no treatment. A special heading has not been made for patients with tubercle bacilli present in the sputum, for it is difficult to ensure a satisfactory report. The results are misleading unless a suitable specimen is examined carefully, and on several occasions, which can only be done properly in an institution with its own pathologist. All ages and both sexes are included.

Results.

The detailed results appear in the following tables. Of the 270 cases in all stages of disease, two years after sanatorium treatment 119 (44 per cent.) come under classes 1 and 2; 44 (17 per cent.) under 3; 71 (26 per cent.) were classed as 4 and 5; and 36 (13 per cent.) were dead. It will be generally agreed that these are good sanatorium figures.

It might be said that as there are only 15 of Stage 3 in the sanatorium series and 116 in the controls, that these cases should be eliminated from both series; this has been done in Table II. On the other hand, it might be urged that among the slight cases used as controls are several discovered as contacts, who might be considered by some observers as cases of pathological and not clinical tuberculosis; therefore Stage 2 cases in each series are similarly compared. Again, the sanatorium results are not bad.

TABLE I.—*Results After Sanatorium Treatment Compared with Cases Otherwise Treated. All Stages of Disease.*

—	1 and 2.	3.	4 and 5.	Dead.	Total
Sanatorium cases after two years	119 (44)*	44 (17)	71 (26)	36 (13)	270
Controls after two years	321 (54)	86 (14)	113 (19)	77 (13)	597
Sanatorium cases after four years	55 (46)	21 (17)	15 (12)	30 (25)	121
Controls after four years	139 (50)	30 (11)	40 (14)	73 (25)	282

TABLE II.—*Sanatorium Results Compared with Controls at the Same Stage of Disease.*

Sanatorium cases, Stages 1 and 2, after two years	118 (49)	42 (15)	64 (24)	31 (12)	255
Controls 1 and 2	316 (66)	69 (14)	63 (13)	33 (7)	481
Sanatorium, Stage 2, after two years	54 (35)	31 (20)	43 (28)	25 (17)	153
Controls 2	110 (44)	51 (20)	56 (23)	31 (13)	248
Sanatorium, Stage 1, after two years	64 (62)	11 (11)	21 (21)	6 (6)	102
Controls 1	206 (88)	18 (8)	7 (3)	2 (1)	233
Sanatorium, Stage 3, after two years	1 (6)	2 (13)	7 (49)	5 (32)	15
Controls 3	5 (4)	17 (14)	50 (43)	44 (39)	116
Sanatorium, Stages 1 and 2, after four years	55 (48)	21 (18)	13 (11)	26 (23)	115
Controls 1 and 2	139 (65)	20 (9)	26 (12)	31 (16)	216
Sanatorium, Stage 2, after four years	18 (30)	15 (25)	7 (11)	20 (34)	60
Controls 2	44 (43)	11 (11)	19 (19)	28 (27)	102
Sanatorium, Stage 1, after four years	37 (67)	6 (11)	6 (11)	6 (11)	55
Controls 1	95 (83)	9 (8)	7 (6)	3 (3)	114
Sanatorium, Stage 3, after four years	—	—	2 (33)	4 (67)	6
Controls 3	—	10 (16)	14 (21)	42 (63)	66

*Figures between parentheses are percentages.

TABLE III.—*Cures obtained in Sanatorium and Control Cases.*

—	Stage 1.			Stage 2.		
	Total.	Cures.	%	Total.	Cures.	%
Sanatorium cases after two years	102	30	30	153	9	6
Controls after two years	233	107	46	248	17	7
Sanatorium cases after four years	55	16	31	60	4	7
Controls after four years	144	62	54	102	10	10

We may now consider the number cured; only those coming under Class 1 (90 per cent. prospect of (*c*) or more) can justly be called cures. These are among the sanatorium Stage 1 cases after two years out of 102, 30 cures (30 per cent.); after four years, 16 out of 55 (31 per cent.). Among 233 Stage 1 controls after two years, 107 are counted cured (46 per cent.) and after four years 144 cases, 62 (54 per cent.). Among Stage 2 sanatorium cases, after two years, a total of 153 gives 9 cures (6 per cent.); and after four years, 60 cases, 4 cures (7 per cent.). Controls at Stage 2, 248 cases, after two years yield 17 cures (7 per cent.); and after four years, 102 cases, 10 cures (10 per cent.).

The stability of the percentage of cures after two and four years shows that this represents something definite. The majority of cases discharged from sanatorium with "disease arrested" relapse within a short time.[3]

[2] Some 12 to 15 were treated as dispensary out-patients by the assistant tuberculosis officer.

[3] Bardswell found that patients, at an average age of 33, discharged from Midhurst "arrested," had the same expectation of life as the average individual of 60, and those "much improved" the same as at 74!

A large number of patients reach Class 2 and there remain indefinitely, tuberculosis not defeated and yet not gaining ground, or gaining very slowly. There occurs in certain of these a race, so to speak, between tuberculosis and senility as the ultimate cause of death.

Discussion.

Believing, as most of us believe, that the sanatorium provides a useful method of treating tuberculosis, I should have preferred the figures to show a little bias in its favour, but the reverse is the case. Allowing a wide margin for error, and supposing that the error is all on one side, remembering also that patients who have been treated at home and have gone down hill are then sometimes sent to a sanatorium, it cannot even so be said that sanatorium results, at the end of two or four years, are in any way better than those obtained in patients who have not been there. If it had been a question of comparing my control figures with someone else's sanatorium figures, it might have been urged that the diagnosis was made differently, or that some such fundamental difference existed, but all these cases have been seen and classified by the same observer, and if errors of diagnosis have been made in one series so also in the other. Cases in which the diagnosis of tuberculosis seemed incorrect after further observation have been struck out of both series. Acute cases, with slight signs, but perhaps some fever and tachycardia, do not tell against the sanatorium, for they would not be sent until observed a little longer.

The patients here considered came from rural, semi-rural, or small urban districts, although frequently living under bad conditions; it would be interesting to learn the results of a similar investigation among a purely urban population. Moreover, my cases are drawn almost entirely from the poorer classes; I cannot speak of sanatorium results among well-to-do patients as the number of these observed personally is too small. True it is that not very much is claimed for the sanatorium nowadays as far as the individual patient is concerned; Newman emphasises this, and so does Bardswell, but Bardswell says also, "physicians of long and intimate experience of the disease are unanimous ..... that residence in a sanatorium represents the best treatment available at the present time." Some years ago a physician of just repute, and whose opinion I respect, told me that perhaps two out of ten early cases are cured or materially relieved by sanatorium treatment; I agreed with this observation at the time, but further experience has driven me to believe that even he over-estimated their value. Our ideas about sanatorium results are partly created by the appearance of patients on discharge (often only a masking of symptoms), and partly by a perusal of the reports from sanatoriums of the condition of patients on their discharge; a large number being reported as disease "arrested," a large number "much improved," with quite a small number stationary, and a very small number "worse."

It is acknowledged that the majority of patients leave a sanatorium stouter, and of better appearance in every way, than on admission; it is further generally acknowledged that the majority of these lose ground quickly on return to their old surroundings; but it is not, perhaps, recognised that they lose ground so rapidly that after two years they have frequently fallen below the level they would then have reached had they never been to a sanatorium. The reason is that the patient had become more or less adapted physically and mentally to fighting the disease under adverse conditions, but after a stay in a sanatorium he has lost this adaptation and may never regain it. Often enough sanatorium treatment is advised for patients who are continuing at work, although far from well. They go away and return after a few months, but never work again; whereas had they been left alone they might have continued the running fight indefinitely. If a tree growing feebly in a poor soil is transplanted to a good soil and then, after improvement, returned again to the bad soil it will not resume its feeble growth, but will probably die.

It is said that a longer period of sanatorium treatment would make all the difference, but this has still to be proved; certainly the patients who remained longest in my series did not give such good results as those who were there a short time; but this observation is hardly fair, for patients who are ill, but appear to be gradually picking up, are often kept a long time, while the slighter cases, who seem well, are sent out at the end of three months. Similarly, if I control sanatorium results by the results in patients treated with quack or special remedies (unluckily the figures are too small), the sanatorium comes out much better, but then patients often turn to these special remedies just when they are becoming hopelessly ill. Possibly if patients were kept at the institutions for a year or more we should then have our authorities urging for a period of three to five years instead of one.

Hitherto all sanatorium results have been published by medical superintendents or those concerned in various ways with sanatorium administration, whose views are often limited to the selected class of patients sent there, and who must, therefore, find it difficult to visualise tuberculosis as a whole. So much is the sanatorium considered to be the basis of all tuberculosis work that no tuberculosis officer is considered properly trained until he has worked there. Private practice might prove a better training ground. Retreating from the standpoint of physical benefit, it is often held that the educational value of a stay at a sanatorium is all-important and makes the patients do better afterwards; it is undoubtedly of great assistance to a patient to know something about the disease, and to recognise his own limitations, but still this does not seem to make his condition, after two years, compare favourably with a patient who has never been there. Probably, however, there is a real value in teaching a patient how to protect others from infection.

The Uses of a Sanatorium.

I do not for a moment advocate the scrapping of all sanatoriums, but the view that a sanatorium as at present conducted is a curative institution, contrasted with the tuberculosis hospital, used mainly for isolation purposes, must be abandoned, convenient though it was. The chief use of a sanatorium lies in prevention, for by this means a number of potential sources of infection are removed for a time from contact with the rest of the community. Moreover, a sanatorium is a kind of mission station, and it is partly to its influence that such an improvement in popular ideas of domestic hygiene has taken place in the last 20 years. A sanatorium with a tuberculosis colony attached has the advantage that it keeps patients away longer; time will show if it benefits the individuals. A place like Davos is the ideal tuberculosis colony. An isolated but busy health resort, with a few minor industries, peopled mainly by those who have active or arrested tuberculosis; shopkeepers, shop-assistants, bandsmen, waiters, and doctors, in this respect nearly all alike. I believe there are similar places in the United States, but we have none here, and it would naturally be difficult to build one up, if labelled from the beginning as a tuberculosis settlement.

Improved Sanatorium Methods.

Undeniably a few cases are definitely and permanently improved by sanatorium treatment and it is worth considering if this number can be increased by improved methods of treatment. First, it must be remembered that the success of a sanatorium depends more than anything else on the personality of the medical officer in charge (as, indeed, do most forms of treatment). Secondly, measures should be taken, especially in the winter months, to keep patients warm and comfortable. I know that Dr. Leonard Hill has shown experimentally that metabolism varies directly as the rate of cooling of the skin (in other words, man is a warm-blooded animal), but his subjects were healthy and probably robust. There must be a limit to the process: in any case a point will be reached at which the body ceases to react to cooling. This limit will surely vary in healthy individuals, and may conceivably be reached very soon in a patient enfeebled by

age or disease. Such a patient may need still, warm air rather than a cold wind. It may even be questioned if increased metabolism is invariably advantageous. And when the individual is stimulated to exercise in order to counteract chill, no doubt it is beneficial if he sends a full stream of healthy blood surging through his tissues; but if instead of healthy blood he sends a mixture of blood and toxins the effect may be different.

Some years ago I pointed out to our county medical officer that sanatorium results would be much improved by warmth, and added that this would be generally recognised within 20 years. "Why wait 20 years?" he replied. So a county conference was arranged at which we were to decide what measures for heating the rooms should be taken, when the Local Government Board said that they would not consent to heating, and the matter had to be dropped. I noticed recently, however, that the new Liverpool Sanatorium is heated throughout, apparently with permission of the Ministry of Health. It is conceivable that better results would be obtained in airy buildings erected on ordinary hotel lines. The majority of patients in Davos are treated in hotels. They have balconies where they can lie out during the day, but they can close up as they wish at night, and the rooms have a heating apparatus, while all dining- and sitting-rooms are comfortably warm—sometimes too warm for British tastes.

Another improvement would be to abolish systematic auto-inoculation as introduced by graduated labour, which is to-day the standard treatment at most sanatoriums. Its introduction was owed to an excellent piece of original work within the sanatorium orbit, but after prolonged trial it has failed to make good. It is uncertain if patients are benefited any more by auto-inoculation than by injecting tuberculin, a treatment now rarely used. I have never met anyone who was convinced that graduated labour had improved his results. It is mentally helpful, no doubt, the gradual increase in work gives the patient a sense of improvement, but this could surely be achieved by other means. I have been told that "the best part of graduated labour is absolute rest," and even in this matter it may be questioned if the rest need be so absolute, for a patient will exert himself more in a single fit of coughing than by feeding himself at meal times for a whole day. Then, again, more attention should be paid to the mental side of treatment. The importance of this has been recognised since the war, but there is a danger it will be forgotten again.

Selection of Cases.

Our view as to the real use of sanatoriums being altered, our conception of what case is suitable for treatment there must also be modified. Each case, of course, must be judged on its merits, but it hardly seems justifiable, in the light of the present investigation, to send every slight case of tuberculosis to a sanatorium as soon as diagnosed, which is the standard advice now given (all forms of treatment ask for early cases, and it is not surprising in view of how well most of them do with very little treatment of any kind). It would appear better to treat such a case at home, possibly after a short "change of air," then to consider sanatorium again if there is no improvement after three months or so. No case that seems to be improving at home should be sent to a sanatorium. On the whole, the case likely to do best there is one with high resistance (but not necessarily slight disease) just failing to hold his own in the face of adverse conditions of work and surroundings—a type doubtless commoner in urban districts than in Devon. For instance, there are tuberculous women living under slum conditions, with several children, who have, may be, never had a holiday since marriage, and these often pick up satisfactorily after the country holiday which a sanatorium affords.

Conclusion and Suggestions.

At a recent discussion I heard a sanatorium authority advise, as they so often do, a further increase in the number of sanatorium beds. He even named 500,000 as the ideal in this country. I take the view that before any extension of the existing sanatorium accommodation is made the whole matter should be carefully reconsidered. No claim is made that the present study settles the problem; it is only an attempt to throw light from a new standpoint on this difficult matter. I do think, however, that we are too much hemmed in by tradition and authority in considering tuberculosis, and that the time has come for free-thinking in this respect if we are to progress.

The distinction has already been mentioned between the sanatorium to which patients are sent for their own benefit and the hospital whither advanced cases are sent for the benefit of others; the hospital seems the more useful institution, although there are far fewer hospital beds available and no prospect of more hospitals being built (many sanatoriums already combine the two functions). I suggest that steps be taken to modify sanatorium treatment with a view to improved results; also that certain sanatoriums should be reserved for isolation purposes, to which mainly cases with tubercle bacilli in the sputum should be sent, at whatever stage of disease; while others, which might be called preventoriums, should be reserved for slight cases and suspects, no patient being admitted there with tubercle bacilli in the sputum. At the preventorium a patient would stay only for a short time, say a month, under convalescent home conditions, while at the sanatorium he would stay indefinitely, the longer the better.

We are, indeed, drifting towards this state of affairs, for the mixing of cases, as it now exists in many sanatoriums, means that sooner or later early cases refuse to go and the sanatorium becomes in effect an isolation hospital.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF "IDIOPATHIC" DILATATION OF THE BLADDER AND URETERS.

BY STANLEY R. TATTERSALL, M.R.C.S., L.R.C.P. LOND.

THE term "idiopathic dilatation of the bladder" was used by S. G. Shattock[1] for those cases of dilatation occurring without any of the usual causes for this condition being found. The obscure nature of the ætiology of this class of case may be sufficient excuse for this brief record of an example.

A. E. T., aged 18, a turner's improver, when first seen gave the following history. Since May, 1919, he had suffered from attacks of vomiting in the morning (before breakfast). These had not been accompanied by pain or hæmatemesis. There had not been vomiting at other periods of the day, and he had been able to continue his work till August 8th. A week later he complained of sore-throat, diarrhœa, and vomiting, and was confined to bed. He came under observation on Sept. 1st, when he was markedly anæmic and drowsy. He did not at this time complain of any pain. On examination the aortic second sound was markedly accentuated and the peripheral arteries thickened. The blood pressure was 140-110 mm. Hg. There was neither œdema nor ascites. The urine was acid, and showed a heavy cloud of albumin on boiling. Pus, blood, and sugar were absent. A few granular casts were demonstrated on microscopical examination. There was no sign of organic disease of the central nervous system.

While under observation the vomiting continued, becoming more frequent and occurring at irregular times throughout the day. On Sept. 4th a complete blood count showed no abnormality beyond a moderate diminution in the number of red blood cells. On the 7th it was observed that there was slight enlargement of both parotid glands. On the 8th this was more evident, and accompanied by a tenderness on pressure, with rise of the evening temperature to 100·8 F. The parotid swelling gradually diminished, but his general condition deteriorated. The vomiting became more frequent, and on the 13th retention of urine developed. Until this time no complaint with regard to micturition had been made, and this retention required the use of a rubber catheter, which passed without any difficulty. The urine now contained 2 g. of albumin per litre, with a little blood. Lumbar puncture on this date showed the cerebro-spinal fluid to be clear and not under abnormal tension. There was no excess of cells; globulin was absent, and the Wasser-

[1] S. G. Shattock: Proc. Royal Society of Medicine, December, 1908 (numerous references to literature).

mann reaction was negative. On the 15th signs of œdema of the lungs were evident, and the patient died on the 16th. With the exception of the evening pyrexia on the 8th the temperature chart showed no departure from the normal.

Necropsy (28 hours after death).—The body was that of a fairly well-nourished youth. The parotid regions showed slight swelling bilaterally. There was extensive marginal ulceration of the gums. The scrotum contained one testis. There was no phimosis.

Head and neck.—No macroscopic abnormalities of brain or meninges; a bilateral suppurative parotitis, with abscess formation in the left gland; larynx, trachea, and œsophagus were normal.

Thorax.—Pleural and pericardial cavities normal; lungs bulky, engorged, and very œdematous; heart showed moderate hypertrophy of left ventricle; cardiac valves all healthy; cardiac musculature appeared in good condition.

Abdomen.—Liver and spleen normal; left testis small and atrophic and lying in left iliac fossa: intestines empty and collapsed. On inspection of renal regions kidneys could not be located; adrenals, however, in usual position; kidneys found to be lying on ala of sacrum, each organ between psoas magnus and vertebral column, and partly in abdomen and partly in pelvis. Psoas muscles did not arise from the vertebral column lower than the third lumbar vertebra, and in order to accommodate the ectopic kidneys were placed much further from the mid-line than is usual. Ureters short, situate entirely within cavity of true pelvis and markedly dilated, measuring about 3 cm. in circumference. Bladder distended and hypertrophied, containing about 18 oz. of clear urine with a high colour; no calculi. Dissection of prostatic urethra showed normal verumontanum without any enlargement of prostate. Kidneys small, showing marked lobulation; on section they were of a pale brown colour. No differentiation between cortex and medulla visible; the capsule was firmly adherent, leaving when stripped a rough pitted surface. As a whole the organ felt very firm and fibrous. Neither hydronephrosis nor dilatation of the pelvis.

Microscopical examination of the kidneys revealed a very advanced degree of chronic interstitial nephritis, the organs being converted practically into a mass of fibrous tissue. The penile urethra was not examined directly, but as micturition for the first 14 days was natural and unimpeded it would appear to exclude the existence of "valves" of the urethra. There was, as stated, no phimosis, and the easy passage of a soft rubber catheter would negative the suggestion of the existence of a stricture.

Hypertrophy of the bladder with dilatation of the ureters consequent upon obstruction of the urethra is well known, but several instances have been recorded of this combination without any such obstruction having been found.[2] A further item of interest in this case is the ectopic position of the kidneys. It would also appear to be distinctly unusual for dilatation of the ureters to occur to a marked degree without a corresponding involvement of the kidney.

A CIGARETTE-HOLDER IN THE LARYNX.

BY N. HAY BOLTON, M.D. EDIN.

THE following case, which was treated at the Shantung-road Hospital, Shanghai, is sufficiently uncommon to be worthy of record.

Loo Va Le, a Chinese boy, aged 10, was admitted to hospital on Jan. 10th with the history that four days previously he had been sucking a Chinese wire cigarette-holder and had suddenly "swallowed" it.

Examination.—The patient was somewhat breathless and cyanosed; his temperature was 102·4° F. and he could only speak in a whisper. With the laryngeal mirror he was found to have an infantile type of epiglottis, but it was just possible to see the upper end of the cigarette-holder, apparently tightly gripped between the false cords; the lumen of its tube evidently constituted all the available space through which he could breathe. The upper aperture of the larynx appeared to be very red and inflamed.

Operation.—I thought it might be possible to extract the foreign body from above, and so (having put the tracheotomy instruments on to boil) proceeded to cocainise the throat; but the patient becoming more cyanosed, he was placed on the table and tracheotomy was performed under chloroform anæsthesia. In opening the trachea I cut right down on the cigarette-holder, and by extending the incision downwards was able to get hold of the lower end and pull it gently down and out through the wound. I put the tracheotomy tube in place, but at this point the patient stopped breathing, and we had an anxious three or four minutes performing artificial respiration until normal breathing recommenced. I left the tracheotomy tube in place for 48 hours in order to give time for the traumatic laryngitis to subside, and then withdrew it. The temperature came down gradually until it reached normal on the sixth day after operation; the neck wound healed up perfectly and there were no chest symptoms.

After about 10 days the patient's voice began to acquire tone, and on leaving hospital 24 days after operation he could speak with a fairly clear but weak voice; the true cords, however, were still thickened and inflamed.

The cigarette-holder was 2½ in. long, ¾ in. in diameter at the wider end, and ¼ in. in diameter at the narrow end; the lumen at the narrow end was barely ⅛ in. in diameter.

[2] C. R. BOX: Proc. Royal Society of Medicine February, 1909.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF SURGERY: SUBSECTION OF ORTHOPÆDICS.

EXHIBITION OF CASES AND SPECIMENS.

A MEETING of this subsection of the Royal Society of Medicine was held on March 1st, Mr. E. LAMING EVANS, the President, being in the chair.

Recurrent or Habitual Dislocation of the Shoulder-joint.

The PRESIDENT, in opening a discussion on this subject defined the condition as one in which a joint, after dislocation has occurred and has been reduced and has remained reduced, offers a subnormal resistance to redislocation, and, in fact, suffers repeated dislocations by slight force. The shoulder is by far the most common joint affected. This is accounted for by the fact that 50 per cent. of all dislocations occur in the shoulder, by the reduction by unskilled hands, by defective after-treatment, and by the normal anatomical structure of the joint and the damage inflicted by the initial injury. The pathological lesions were discussed in detail.

The following methods of treatment have been employed: (1) Palliative, by the use of appliances to limit the joint movements. (2) Physiological, by increasing the tone of muscle, tendon, and ligament. (3) By reefing operations upon the capsule: (*a*) plication; (*b*) excision and overlapping. (4) By repair of ruptured tendons and musculo-tendinous insertions. (5) By muscle transplantation. A fair trial of mechanical support and physiological toning should be tried first, as they have cured cases. Reefing operations had been followed by many successes and not a few failures. Muscle transplantation has been performed by detaching the posterior fibres of the deltoid, passing them forwards inside the neck of the humerus and fixing them in front. Opinions differ as to whether the graft retains its contractile power, or undergoes fibrous degeneration.

He showed the following case treated by this (Clairmont's) muscle transplantation operation:—

Major ——, aged 41 years. Left shoulder dislocated at football in 1899, and redislocated 19 times since. When seen in 1920 even sneezing would produce dislocation, which was always attended by much pain and required surgical assistance for reduction. The dislocation was subcoracoid. Clairmont's operation performed in August, 1920. The "quadrilateral space" is defined through an anterior incision, some fibres of the pectoral major and latissimus dorsi being divided. Through a posterior incision a strip of the deltoid, with its nerve and blood-supply intact, is separated and its insertion divided. Not more than a quarter of the deltoid should be used. The free end of the flap is passed forwards through the quadrilateral space and sutured to the anterior fibres of the deltoid in front. The tension on the graft must be sufficient, but not excessive. The shoulder was fixed for six weeks when active and passive movements were begun. The result has been satisfactory so far. He can go into a practice scrum and demonstrate to his pupils how to get the ball.

Mr. T. H. OPENSHAW showed a man, the subject of epilepsy, on whom he had operated first 15 years ago. The right shoulder had been "out" 50 times and the left 35 times. Dealing with the right shoulder, he tried injections of irritants—e.g., iodine, carbolic, &c.—on four occasions; he cut the pectoralis major and teres major, he plicated the capsule, he performed an arthrodesis, all of which gave only temporary, if any, benefit. Finally, he cut the subscapularis and this cured him. On the left he did an arthrodesis and later cut the subscapularis. The result was spoilt by a fall, which produced a traumatic dislocation, and the recurrent trouble returned; he had the shoulder out three times in ten days. A second arthrodesis cured him. He said he had operated on ten cases of this sort, doing nothing but divide the subscapularis, and all had been successful, and he knew of others treated in a similar manner with equal success.

Mr. A. H. TODD referred to two cases upon which he had operated. He uses an abduction splint.

Mr. W. ROWLEY BRISTOW showed a case affecting both shoulders. He was an epileptic and each shoulder had dislocated 16 times. Both joints were operated upon by the Clairmont-Ehrlich method, the right in August, 1919, and the left in November, 1919. The result is that the right is perfect. He has bowled 34 overs in one game without bad result. The left shoulder has dislocated again some five or six times. The first was reduced by a doctor, but the others he reduced himself. He feels as if it comes partly out but not right out, and the pain is not so severe as formerly. He thinks abduction splint unnecessary, and doubts whether the graft really functionates as a muscle as it is passed through a rough space.

Mr. A. W. SHEEN showed a case, a male, aged 43, who dislocated the left shoulder in June, 1915. Redislocation had occurred 19 times since; sneezing had produced dislocation. When seen eight months ago movements, particularly abduction, were restricted. He had been treated by physical methods and now had a strong arm with full movement. There is some grating in the joint and X rays show some irregularity in the region of the greater tuberosity. There has been no redislocation for 14 months.

The PRESIDENT, in reply, said the discussion had brought out two good methods of treatment—viz., division of the subcapsularis (hitherto unpublished) and transplantation of muscle. He thought that abduction in the after-treatment, as suggested by Mr. Todd, might make the graft act as a lever to lift outwards the head of the humerus.

Recurrent Dislocation of the Patella.

Mr. ROWLEY BRISTOW, in opening a discussion on this subject, said the displacement was to the outer side. The two cases shown presented no sign of knock-knee, and the ligamentum patellæ did not seem to be elongated, and only one had quadriceps insufficiency. These three are given as the causes of the condition, but do not seem sufficient, as knock-knee and quadriceps insufficiency are extremely common yet dislocation of the patella is rare. He suggested anatomical causes, the ridge on the external condyle of the femur being at fault. Goldthwait describes the condition as peculiar to young girls and women. Both his (Mr. Bristow's) cases were in men.

Treatment.—Redevelopment of the vastus externus should be tried and may suffice. If operation becomes necessary, what should be done? 1. If knock-knee is present, correct it. 2. Pleating of capsule on the inner side seems bound to fail; Goldthwait's three cases treated by this method relapsed. 3. Shortening of quadriceps (Tubby) is not considered a sound method. 4. Transplantation of half or all of the patellar tendon to the inner side. 5. The operation performed in the two cases shown consisted in transplanting the tibial tubercle well to the inner side, and then driving an osteotome into the femur immediately behind the ridge on the outer condyle, levering this forward to make it more prominent. This position is maintained by the insertion of a small wedge of bone taken from the original site of the tibial tubercle. The capsule on the outer side is incised and left open. Fixation for five or six weeks in full extension, followed by physical treatment.

In both cases, operated upon about a year ago, the result is satisfactory. The first case dislocated his left patella jumping over trenches in March, 1917, since when he could not straighten the knee. He walked with the dislocation unreduced for two years. Operation as above, January, 1920. Result: no relapse. Movement: full extension to 80 degrees. Walks well. The second case had his left patella dislocated in 1915 by a kick from a horse. Recurrence on four or five occasions. It was sometimes reduced by the patient and sometimes by a friend. Operation as above, February, 1920. Result: no relapse. Full range of movement of joint. Tender on pressure over transplanted tubercle.

Mr. O. L. ADDISON showed a boy of 7 years. He had loose knee-caps for two years before operation. He fell down when walking. It was first noticed three months after a fall downstairs. Plaster had been applied for six months. Vastus internus was very wasted. On bending knees 35 degrees there occurred complete dislocation of patella to outer side of condyle. ? poliomyelitis affecting mainly vastus internus. Operation: reef of inner side of capsule and gracilis tendon inserted through a slit in the patellar ligament. Apparatus limiting flexion worn for six months. There has been no relapse.

Mr. A. H. TODD showed a woman of 37 with recurrent dislocation of both patellæ. At 10 years she fell and hurt one knee. Recurrent trouble ever since, associated with attacks of synovitis. The other patella began luxating without obvious cause. No knock knee. Both patellæ can be luxated easily by manual pressure. Operation is advised.

The PRESIDENT showed a case of a man who had had synovitis after injury in September, 1917. The patella had dislocated on flexion ever since. The displacement begins at 30 degrees flexion and becomes suddenly complete at 60 degrees. Operation in May, 1920. The tubercle of the tibia was transplanted inwards to a bed prepared for it, and fixed with catgut. Result: no recurrence; extension of joint full; flexion to 80 degrees.

Mr. H. A. T. FAIRBANK had operated upon three such knees. He transplanted the tibial tubercle and overlapped the capsule on the inner side. In transplanting the tubercle he carried the incisions in the periosteum on either side of it down along the skin, and raised this strip of periosteum with the tubercle. This strip being left attached below, the continuity of the insertion of the quadriceps into the tibia was unbroken. In a child with habitual dislocation dating from birth, although there was no genu valgum when the knees were extended, there was definite valgus when the knees were flexed. Macewen's osteotomy was performed as well as the operation on the joint, and the result in both legs was entirely satisfactory when seen two and a half years later.

Mr. ROWLEY BRISTOW briefly replied.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

EXHIBITION OF CASES AND SPECIMENS.

A MEETING of this section of the Royal Society of Medicine was held on March 3rd, Professor HENRY BRIGGS, the President, being in the chair.

Dr. H. RUSSELL ANDREWS showed two specimens of

Sarcoma of the Uterus,

the first of which seemed to afford clear clinical evidence that a fibroid had become sarcomatous.

The patient, a single woman aged 65, for three months had complained of frequency of micturition, difficulty in emptying the bladder, and a sensation of pressure on the rectum, and had been losing weight. She looked rather cachetic. For two months she had noticed increase in the size of the abdomen; there had been no bleeding or discharge since the menopause. She had been told 12 years previously that she had a uterine fibroid, but she was never conscious of the presence of a tumour until ten days before she was seen by Dr. Andrews. Sir John Phillips wrote that six years previously there was a subserous fibroid, the size of an orange, not palpable per abdomen. Dr. Andrews found a very prominent, firm, rounded tumour rising out of the pelvis to a point two inches below the umbilicus. Vaginal examination was impossible. On rectal examination it was found that a good deal of the tumour lay in the pelvis and was almost fixed. The cervix was normal; the body of the uterus could not be differentiated. There was infiltration of the right utero-sacral ligament, and the diagnosis lay between sarcoma of the uterus and malignant ovarian tumour. During examination under anæsthesia the body of the uterus could be made out lying to the left of the tumour and blended with it. When the abdomen was opened hysterectomy was found to be impossible, so the right broad ligament was incised and the tumour shelled out, leaving the right cornu with tube and ovary on one side, and the rest of the uterus, which contained no other tumour, on the other side. There was much induration of the cellular tissue in the right side of the pelvis, and a large fixed gland on the right iliac vessels. The patient made a good recovery.

The description of the tumour from the pathological department of the London Hospital was as follows:—

An almost rounded tumour, partly fixed in formalin 15 × 13 × 10 cm. The outer surface shows rounded well-defined bosses, and is smooth except for fibrous tags. It

appears to be encapsulated. There is one projecting nodule devoid of capsule. On section the tumour is divided into lobules that vary in size. These lobules have a homogeneous grey, brain-like appearance. A few of the lobules show a very faint whorling, with faintly differentiated translucent grey and pearly white bundles. Towards one end is a large area which is opaque and yellow. At one point on the surface of the growth there is a cord, 2·5 c.cm. long, of white tough tissue (growth) projecting from the surface. This is seen to project from a smooth lined, blood-stained tube, evidently a vein in the growth.

Dr. Andrews said that the naked-eye appearance of the tumour was characteristic of sarcoma. Mr. A. C. Palmer had supplied him with the following microscopical description:—

The section is taken from the most homogeneous portion of the tumour. The greater part of the section is occupied by atypical muscle tissue. In some areas bands of typical muscle fibre and connective tissue can be seen running through the section. In the atypical areas, muscle fibres are very abundant and they have their long axis disposed in all directions. Collagenous fibre is for the most part absent, but a few small areas of fine pink fibrils occur among the muscle fibres. The muscle nuclei vary greatly in size and shape, and multinucleate formations are frequent. In another section, taken from a portion of the tumour which showed faint whorling, there are numerous interlacing bands of pink collagenous fibre. In the spaces between the collagenous fibre, atypical muscle cells are relatively scanty.

In the second case, a necrotic sarcoma of the uterus, a large amount of the tumour, of jelly-like consistence, was discharged into the peritoneal cavity through a hole in the posterior surface of the uterus.

The patient, aged 51, had been married six months and had noticed her abdomen getting larger for 12 months. She had always suffered from menorrhagia, had had occasional floodings for a year, and almost continuous hæmorrhage for six months, often passing large clots. For two months she had noticed a lump protruding from the vagina, and for a week or two had had a foul discharge. She was profoundly anæmic, hæmoglobin 35 per cent., red blood corpuscles 1,900,000. On examination a hard, tender, rounded swelling was found which filled the lower part of the abdomen, reaching to just above the umbilicus. A necrotic, lobulated, pedunculated tumour the size of a large walnut protruded from the vulva, the pedicle being attached just behind the orifice of the urethra; the cervix was normal. The large tumour was evidently uterine; the vulval tumour was thought to be a sarcoma. There was a horribly offensive discharge. The vulval tumour was removed by Mr. S. G. Luker, and was first thought to be an inflamed, very œdematous fibromyoma, but on further examination proved to be a myosarcoma. The blood count improved slightly, but the foul discharge continued, the abdominal tumour became more tender, and the evening temperature varied from 99° to 101° F. It appeared probable that the tumour was undergoing necrosis, and as hysterectomy seemed dangerous Mr. Luker dilated the cervix and inserted two Carrel's tubes, through which the uterine cavity was irrigated with eusol. The temperature dropped and the odour of the discharge diminished. The tumour became smaller until it reached only two-thirds of the distance to the umbilicus, although no growth had been discharged into the vagina. Thirteen days after the insertion of the tubes hysterectomy was performed by Dr. Andrews after he had packed the uterine cavity with iodine gauze. In the peritoneal cavity was a quantity of soft, translucent, jelly-like material, inodorous, exuding from a hole in the posterior surface of the uterus. Glands along the common iliac vessels on the right side were enlarged. The wound healed well, but septic thrombosis ensued and the patient died four weeks later.

The pathological report was as follows:—

A uterus much enlarged, 14 × 11 × 4·5 cm. Peritoneum smooth throughout except for a soft red gelatinous nodule 1 cm. in diameter in right posterior wall of body. Uterus feels somewhat soft and doughy. The cavity is much distorted. In the right anterior wall, pushing the cavity to the left, is a large nodular mass which has broken through the endometrium. It is 9 cm. across and is made up of soft nodules, grey or greenish-brown in colour, separated by narrow sunken lines. The green nodules have a somewhat ulcerated surface. Others appear to be covered by endometrium. On section this mass consists of grey nodules, semi-translucent, and separated by narrow zones of white firmer tissue. The cut surface bulges slightly, and around the nodules in the wall are similar small areas. The mass is for the most part definitely encapsulated. There are other small masses raising the peritoneum on the posterior wall, some of which have hæmorrhage in them.

Microscopical section: (1) Œdematous, leio-myo-sarcoma of body of uterus; (2) cellular, atypical, œdematous fibromyoma; (3) normal uterine wall.

Dr. ANDREWS also showed a case of

Lipomatosis of the Stroma of a Uterine Fibromyoma.

The patient, a multipara, aged 38, had had menorrhagia since a miscarriage four or five years ago, and this had increased in severity during the last two years. The abdomen had been increasing in size for a year or more. For two months there had been swelling of the legs and puffiness of the face in the mornings. Patient was gravely anæmic, lemon-yellow in colour; Hb. 20 per cent., colour index 0·3, red corpuscles 3,100,000. The urine contained albumin but no casts. A large tumour, apparently a tense cyst, rose out of the pelvis to a point above the umbilicus. The cervix was almost out of reach, and a soft, apparently fluctuating swelling bulged deeply into the pelvis. The tumour was so soft that the resident thought at first that it was a distended bladder, and after passing a catheter that it was an ovarian cyst, whereas Dr. Andrews took it for a degenerate fibroid. After two and a half weeks, the patient's general condition having improved, Dr. Andrews performed subtotal hysterectomy, removing one enlarged ovary. The cavity of the uterus was enormously enlarged by a tumour 8 in. in diameter in the posterior wall. On section it was a mass of golden-yellow fat with a few white fibrous areas towards the centre. The patient made an uninterrupted recovery.

The following is a report of the tumour after it had shrunk:—

The tumour is rounded and as far as can be accurately measured is about 14 cm. in diameter. It lies in and occupies the posterior wall of the body. It bulges into the cavity and apparently fills it, the cavity being convex anteriorly and stretched over the tumour. The endometrium is smooth, grey, and thinned out over the tumour, slightly thicker elsewhere. Cavity 13 × 13 cm. Wall of uterus from 1·8 to 2·5 cm. thick. The cut surface of the tumour bulges and is bright yellow and translucent. Tumour is elastic and tough; it looks like lipomatous tissue. There are a few slits in it, and a few white fibrous areas towards its centre. It is everywhere enclosed by a thickness of at least 1 cm. of muscular tissue. Peritoneum smooth. No other nodules. Ovary 5·5 × 3 × 3 cm. It contains a few follicular cysts up to 1·5 × 1 cm.

Dr. Andrews anticipated some difference of opinion about the manner in which fat became deposited in this tumour. In some places the fat could be clearly seen to be in the connective tissue. In other places there were small groups of unaltered muscle fibres lying surrounded by fat. He personally would have been content to call the tumour a fibro-myo-lipoma of the uterus, but Professor H. Turnbull had said:—

"I should call the condition lipomatosis of the stroma of an intramural fibro-leio-myoma of the uterus. It is an example of fatty infiltration of fibrous tissue."

Mr. PALMER had supplied a description of the microscopical appearance of the tumour.

The section is taken from the centre of the tumour. The greater part of the section is occupied by lipomatous tissue. The fat is deposited as a large single globule which fills the cell. There are also areas and strands of tissue partly or completely free from fat cells. In these areas the muscle fibres are sparse and lie in a matrix which is, to a large extent, homogeneous and stained yellow, but contains delicate yellow and, less abundantly, pink fibrils. The appearances are those of an œdematous fibro-myoma. Very small areas of such œdematous fibro-myomatous tissue are seen between fat cells of the lipomatous tissue. Further, single muscle fibres or small groups of muscle fibres frequently lie between the fat cells of the lipomatous tissue. These appearances favour the view that it is the cells of the interstitial tissue that have become lipomatous cells.

Dr. CUTHBERT LOCKYER recalled a specimen from the London Hospital showing a similar condition of lipomatosis. There were about 12 cases on record and the point of interest lay in the doubtful origin of the condition. It might be a superimposed neoplasm or it might be a degenerative lesion. Dr. Lockyer had decided that the latter was more probable and that muscle cells shared in the degeneration.

Dr. HERBERT WILLIAMSON spoke of the paper published by him with Dr. R. St. L. Brockman.[1] His own specimen had shown a quite circumscribed tumour with a capsule in the centre of a fibro-myoma. He had been given an opportunity of examining the tumour

[1] THE LANCET, 1920, i., 870.

described by Dr. Lockyer and he had found evidence of globules resting on the muscle but none within the muscle.

Mr. PALMER agreed with Dr. Williamson on this point.

Dr. ANDREWS briefly replied.

Dr. GEOFFREY EVANS read a paper on the Study of the Condition of the Arteries in a Uterus removed 24 days after delivery.

Mr. ALECK BOURNE read a paper on Puerperal Salpingo-peritonitis.

SECTION OF OTOLOGY.

A MEETING of this section of the Royal Society of Medicine was held on Feb. 18th, with Sir CHARLES BALLANCE in the chair, when Dr. A. R. FRIEL read a paper on

Zinc Ionisation and Electrolysis in the Treatment of Chronic Otorrhœa.

He dealt in detail with the results of the ionisation of 217 ears. The outstanding fact was the rapidity with which the suppuration cleared up under the method, in many cases within 24 hours. Ionisation was also an aid to diagnosis. In six of the cases the application of the method did not result in the cessation of the discharge. These had granulations and polypi in addition to the ordinary septic discharge.

Sir JAMES DUNDAS-GRANT supported, from his own experience in the clinic in which Dr. Friel practised the method, all that the author claimed for it. The results seemed best and speediest in cases having a large central perforation rather than a marginal one, though under the ordinary treatment even these seemed to be very obstinate.—Dr. W. SALISBURY-SHARPE, who brought some cases from the clinic of the Central London Throat and Ear Hospital, confirmed all that had been advanced by Dr. Friel. One of his unsuccessful cases had complete obstruction in both ears due to perichondritis; as the electrode was unable properly to penetrate the obstruction, improvement had only been temporary. Another case had obvious disease of the mastoid bone, with granulations and a profuse discharge.—Mr. W. STUART-LOW said he had used the method in cases in which there were granulations, but for these he had discontinued it and reverted to the employment of a very fine actual cautery, the results of which were very satisfactory.—Dr. ANDREW WYLIE spoke of the good and rapid results achieved by the method in some cases he sent to Dr. Salisbury Sharpe.—Dr. P. WATSON-WILLIAMS said he had been disappointed in one or two cases for which he had tried the method, perhaps because of the presence of complications or some fault in the technique employed. He spoke of cases of old-standing infection of the upper end of the Eustachian tube, and asked how contact of the electrode with the diseased tissue could be ensured. In the light of the present paper he intended to give the plan a further trial.—Mr. SYDNEY SCOTT remarked that 17 years ago Mr. West and he used the method at St. Bartholomew's Hospital on the suggestion of the late Dr. Lewis Jones. It was discontinued because it did not succeed in complicated cases in which there were granulations, and because the cases in which it succeeded were those which did not need any surgical treatment at all. He asked whether the cases referred to by Dr. Friel and Dr. Salisbury-Sharpe had been previously examined bacteriologically.

Dr. FRIEL, in his reply, said the cases now described were not bacteriologically examined before treatment. The method was not intended for the remedy of any factor except sepsis which was accessible to the zinc solution. Granulations and polypi should be removed surgically before ionisation was applied.

Mr. W. M. MOLLISON described two cases of

Paralysis of Eye Muscles with Mastoiditis

in boys aged 12 and 10 respectively, in which paralysis of the eye muscles occurred in the course of mastoiditis; in the first after operation for acute symptoms arising in the course of chronic suppuration, in the second in the course of simple acute mastoiditis. In the second case lumbar puncture did not reveal increased pressure of cerebro-spinal fluid. In the first case this fluid was under pressure and was slightly cloudy. Recovery was eventually complete in both. The symptoms in these cases suggested meningitis, and the evidence seemed to point to the eye paralyses being due to metastatic infection rather than to the spread of infection to the tip of the petrous bone, and so to the nerves as they cross to the wall of the cavernous sinus.

Mr. ARTHUR HUTCHISON narrated a case of somewhat analogous nature in a boy aged 7 years, though in this the termination was fatal. The trouble seemed to have started with measles. There was pain in the left ear and over the left eye and the temperature was 101° F. After paracentesis of the left tympanic membrane the pain ceased and the temperature became normal. A week later, however, a sudden rigor occurred, with a temperature of 102°. This was of only short duration. A fortnight later there was further ear discharge, with pain, and a squint developed. Mastoid operation revealed red inflamed bone, but no pus, except in the antrum and attic. Five days later the temperature was 103·8°, the pulse 148, the boy vomited three times, and the neck became stiff. Lumbar puncture showed turbid fluid under pressure, which yielded streptococci. Daily injection of antistreptococcal serum did not avert the fatal issue. A post-mortem examination was not allowed.

Mr. HUNTER TOD discussed the cases. He said the reason paralysis of the external rectus occurred in cases of acute otorrhœa and mastoid disease was not yet clear, and until that was understood it was difficult to know what was the best line of treatment, and especially whether or not the dura mater should be opened. In his own practice he found cases of paralysis following mastoid disease had been very few. He related two or three. In the presence of sixth nerve paralysis lumbar puncture should be performed, and if a septic focus was discovered it should be removed, care being taken to remove the bone well over the tegmen tympani and the anterior portion of the petrous bone.—Mr. STUART-LOW referred to a case with seventh nerve paresis and sixth and third nerve paralysis simulating cerebellar abscess, which cleared up under increasing doses of potassium iodide.—Mr. W. C. WILKINSON thought most of the cases of the kind were of the pneumatic type. In one fatal case an abscess was found at the apex of the petrous bone, and a large collection of pus at the base of the skull.—The PRESIDENT related some cases in his practice, and said that when a pathogenic organism, such as streptococcus, could be grown from the milky cerebro-spinal fluid, the case usually proved fatal.—Mr. SCOTT said he looked upon sixth nerve paralysis in ear conditions as an indication of increased pressure of cerebro-spinal fluid. In some the fluid was full of organisms, but in others such were absent.

Epithelioma of Auricle.

Mr. NORMAN PATTERSON showed again a patient, a man, aged 67, from whom an epithelioma was removed from the auricle nine years ago by a very extensive operation on account of the widespread glandular involvement.—The PRESIDENT congratulated Mr. Patterson on the case.

Cirsoid Aneurysm Involving Temporal Bone and Neck.

Mr. PATTERSON also showed a case presenting this condition, in a woman, aged 46, on whom two operations had been performed for removal of polypus from the post-meatal wall, at which the hæmorrhage was very severe. She now had a pulsating expansile swelling in the left anterior triangle with a systolic thrill. Pressure on the common carotid stopped the pulsation. The polypus removed showed no signs of malignancy.

SECTION OF TROPICAL DISEASES AND PARASITOLOGY.

PREVENTION OF TROPICAL DISEASES AND THE RESPONSIBILITY OF LONDON: PRESIDENTIAL ADDRESS.

A MEETING of this section of the Royal Society of Medicine was held on Feb. 24th, when Sir LEONARD ROGERS, C.I.E., F.R.S., delivered the Presidential Address, taking as his subject the future of the study

of tropical diseases, and the responsibility which lay upon London in that regard.

He commenced by stating that the claims upon medical attention of tropical diseases were being fully recognised in the pre-war period, especially in this country, inasmuch as a large number of the British population, for public or private reasons, pursue their careers in our dependencies, where only too often they are the prey of parasitic disorders of a tropical nature. The Section of Tropical Diseases and Parasitology of the Royal Society of Medicine, he said, had been started before the war, but full organisation had not been secured when the war arrived, rendering the work of the section imperative on account of the large number of medical men who were brought into contact with every variety of tropical and subtropical disease while serving with the navy and army. Sir Leonard Rogers pointed out that the research work done at the Calcutta Medical College, where he had been professor of pathology, and at the large hospital of 600 beds affiliated, had led to vast public benefit by the prevention of disease, as well as to the promotion of the spirit of research. He described the methods employed to make intelligent appeal to the Home and Indian Governments and to wealthy individuals for money to equip and support this work. Large contributions for the upkeep of the institutions, he said, had come from Indian rajahs and Indian merchants, while subsidies for scientific research had been received from English men and business firms as well, to mention two names, from Sir David Yule and Sir Dorab Tata, of Bombay. He proposed that London, the wealthiest city in the world, having before it the examples of Calcutta and Bombay abroad and Liverpool at home, and the stimulating actions of philanthropists like Mr. H. S. Wellcome and the late Sir Alfred Jones, should endow the London School of Tropical Medicine, so that research laboratories in British tropical countries could be founded in connexion with the school. He believed that the support of the Colonial Office would be forthcoming for such a movement, and suggested that the start should be made by obtaining annual contributions towards the support of research workers to proceed to certain British colonies. He considered that the colonial authorities should supply laboratories wherein the researches should be carried on, these being adjacent to the largest available hospital. The men to do the initial work should, he pointed out, be selected by a strong organising committee, and it was particularly important that their early choice should fall on the right man, as the first five years of work would be critical. This plan, he said, would eventually ensure that all important British tropical possessions would obtain permanent laboratories and the services of scientific workers whose efforts could be supplemented, in accordance with urgent or special need, by temporary workers sent out from the London School.

Sir Leonard Rogers concluded a highly sensible address as follows:—

"I trust I have made it quite clear that I am not criticising the earlier policy, which was doubtless correct in the first stages of the evolution of our home schools of tropical medicine, but I do wish to suggest, in the light of my long Indian experience, that the time has come for the further advance I have indicated. Indeed, I think this has been necessitated by the very success of recent researches in this field, including all the work done on dysenteries during the war, for now so many of the simpler problems have been solved the remaining problems of tropical medicine will require much more prolonged and detailed inquiries, including team-work, such as is being provided for in the Calcutta school, the liberal public support of which would serve as a stimulating example to London philanthropists, and especially to those whose firms or companies trade with tropical countries. Their young assistants have to live in such climates exposed to unnecessary dangers to their health from the lack of the safeguards provided by research laboratories, and I appeal to their employers for support for the proposals I have ventured to bring forward."

MEDICO-LEGAL SOCIETY.—**A meeting of the society** will be held at 11, Chandos-street, London, W., on Tuesday, March 15th, at 8.30 P.M., when a paper will be read by Sir John Collie on The Plaintiff: a Psychological Study.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

A MEETING of this society was held at 11, Chandos-street, London, W., on Feb. 18th, with Professor W. J. R. SIMPSON, the President, in the chair.

Some Observations on the Pathology of Relapsing Fever.

Lieutenant-Colonel J. C. KENNEDY, R.A.M.C., in his paper on this subject, prefaced a detailed account of the minute pathology found in a single case by alluding to relapsing fever as endemic in Mesopotamia, and the cause of much sickness, particularly amongst Indian troops of the Mesopotamian Expeditionary Force. Its seasonal incidence was most marked during the first quarter of the year 1918–19, the majority of cases occurring in March. The disease was certainly louse-borne, and the organism was either *Sp. obermeieri* or *Sp. carteri*. He referred to a variety probably conveyed by a tick, which was prevalent in Persia but not in Mesopotamia. Early in 1919 there were many cases at Bagdad with considerable mortality. Between October, 1918, and June, 1919, the total case mortality was 3·6 per cent. (British 6·5, Indian 4·5, local 2·5 per cent.). The cases presented marked cerebral symptoms, delirium, and coma—features in common with those recorded by recent writers, including Vandyke Carter. Colonel Kennedy had found but scanty reference to the pathology of the disease in text-books, and quoted from Mackie's review of the subject up to 1908, which failed to demonstrate any characteristic changes other than those of severe septicæmia, such as fatty degeneration of the heart muscles, enlargement of spleen and liver with necrotic areas due to infarction or local concentration of spirillar toxins, hæmorrhages not uncommonly, especially in the kidneys, some bronchitis, and patches of necrosis in the bone marrow possibly due to infarction. Spirilla were demonstrated in the tissues with difficulty, appearing in the blood-vessels and about the hæmorrhages. His own observations were derived from examination of material from a fatal case in an Arab coolie in the isolation hospital at Bagdad.

The patient, who was semi-conscious, showed spirilla in the blood, enlarged spleen, general purpuric rash, marked jaundice and debility, and he died on the day of admission after five days' illness. The autopsy was held 12 hours after death. On microscopical examination spirilla were found only in smears of the surface of brain and in sections of the cortex. The brain also showed much meningeal engorgement and to a less degree of the cortex, superficial cortical hæmorrhages, and small areas of round-celled infiltration under the pia-mater, extravasation of red cells into the perivascular spaces of the pia-arachnoid, proliferation of large mononuclear (endothelial) cells around the meningeal vessels. Much brown pigment, both amorphous and crystalline, was found free in the blood-vessels and spaces and in the large endothelial cells. These showed phagocytosis, particularly in the cerebellum. The liver was large, fatty, and, microscopically, showed cell destruction, round-celled infiltration, engorgement of intralobular capillaries, proliferation of large endothelial cells of Kupffer type, deposition of much pigment, and the presence of many round or oval bodies of uncertain nature. These occurred both free and within the vacuolated gland cells, together with pigment particles, similarly also within the endothelial cells, which showed proliferation and phagocytic power, as in the brain preparations. It was suggested that these "bodies" were either of a specific nature, possibly protozoal, or a phase in the degeneration of polynuclears, but so far neither of these views had been verified. The discovery of spirilla in small numbers in the post-mortem material of the case was limited to the brain surface, and superficial layers of the cortex as revealed by Levaditi's method. Many of them showed a terminal granule or spore-like body, which in his opinion probably provided the clue to the cycle of development of the spirillum responsible for the relapses of spirillar fever. The spleen was large and showed pigmentation, necrotic areas, and large endothelial cells. The condition of the enlarged kidneys and bone marrow added nothing further to what was already known and described, and, with the heart's blood, had failed to show presence of spirilla.

Dr. C. M. WENYON had had the opportunity of careful study of Colonel Kennedy's interesting preparations, and was of opinion that the "bodies" described were possibly degenerated leucocytes of unfamiliar appearance as the result of section in different planes. This

point, he thought, could only be cleared up by a thorough examination of a number of serial sections. He regarded the marked endothelial cell proliferation and the phagocytic and wandering properties as in no way characteristic of spirillar fever alone, being a common feature in other infections.

Dr. S. A. POWELL spoke of his considerable experience of relapsing fever in Bombay in 1902, when he had carried out as many as 200 autopsies on natives dying of the disease, a number of them collapsing in the streets and being brought in dead, or escaping from hospital when delirious, wandering for miles into the country till finally dropping from sheer exhaustion. In such cases the diagnosis to be determined by post-mortem examination rested between plague and relapsing fever. Splash-like hæmorrhages over the various serous membranes were a common feature, and fatty degeneration of the liver and heart was most marked in cases which had relapsed. He had never found spirilla for longer than six hours post mortem; in fact, they usually disappeared from the circulation within a couple of hours. Past malarial attacks, he suggested, might explain the large amount of pigment found in the material examined by Colonel Kennedy.

Lieutenant-Colonel S. P. JAMES (I.M.S., retired) questioned the validity of the diagnosis of relapsing fever, and also regarded past malarial attacks as possibly accounting for the presence of pigment.

Surgeon Rear-Admiral P. W. BASSETT-SMITH disregarded pigment as characteristic of relapsing fever, and drew attention to the frequency with which pigment bodies were found in intense toxic infections such as malarial and blackwater fevers.

Dr. W. H. WILLCOX referred to his paper on Relapsing Fever in Mesopotamia in 1916–18, read before the Royal Society of Medicine in 1919. The case mortality among Arabs was 8 per cent., among Indians 1 per cent., but there was a negligible mortality among Europeans. Louse infection was the prevailing form of conveyance. At Miani there was a tick infection producing Miani fever, very similar to relapsing fever, which he had met with in North Persia, attacking particularly newcomers.

Dr. G. C. LOW inquired as to the number of autopsies on cases of relapsing fever Colonel Kennedy had performed, and alluded to the comparative frequency with which the endothelial cells and pigment were found in malarial infections.

Colonel KENNEDY, in his reply, owned that the large amount of pigment present in his case might have been due to past malarial attacks, but no malarial parasites had been found. He regarded the greater part of the pigment as due to relapsing fever, and the great endothelial reaction was, in his opinion, a striking feature. The inclusions of pigment seen in blackwater fever and toxic hæmorrhages were not the same as in relapsing fever. Dr. Powell's experiences bore out the observations of Vandyke Carter, fatty degeneration of organs being most marked in relapsing cases.

The PRESIDENT proposed a cordial vote of thanks to Colonel Kennedy for his paper, which he thought might eventually prove an important discovery in the pathology of relapsing fever.

Five Cases of Fasciolopsis Infection.

Dr. A. F. COLE (Ningpo, China), in a paper on this subject, alluded to the rarity of the infection, although the five cases he described by no means represented all the cases seen in the wards of the C.M.S. Hospital, Ningpo. From study of sections he had been unable to observe any important differences between the types *F. buskii*, *rathouisi*, and *goddardi*. He referred to the importance of examining the fresh fluke and to the errors which had arisen from attempting to classify the dead and degenerated fluke. As a result of his own observations he was inclined to believe that it had not been clearly shown that there was more than one species, *Fasciolopsis buskii*, in the part of the Che-kiang province where he had lived. As regards clinical facts, his five cases suggested that: (1) The parasites lived in the stomach, duodenum, and the first part of the intestine only; when found in the large bowel they were nearing the end of their existence. (2) Their ill-effects were not in the direction of blood destruction, but were produced by toxic absorption leading to secondary anæmia, dyspnœa, general œdema, ascites, and skin changes, but without directly causing fever. (3) No melæna had been noted, but diarrhœa was common though blood had been stated to have been passed, but the freshly passed fluke readily resembled blood-clot in a mass of fæces. (4) No cases were observed in infants or young children. This was due possibly to weaning being delayed to the third or fourth year. (5) Unless the parasites were expelled by art or accident the disease might prove fatal, but rapid recovery followed evacuation of the parasites, unless in the later stages of exhaustion. Reference was made to the importance of fæcal examination and re-examination for the characteristic fasciolopsis ova and to the marked motility exhibited by freshly passed flukes in many cases. He thought the epigastric discomfort and irregular diarrhœa might be due to migratory movements of the parasite within the bowel, the change of position being possibly brought about by the cuticular spines and the musculature of the flukes. The size of the flukes varied considerably, in one case ranging between 53·3 and 25·4 mm. in length, and 16 to 9 mm. wide. Courses of thymol amounting to 45 g. in three doses proved the most efficacious treatment.

Colonel CLAYTON LANE referred to the importance attached by Goddard to the unity of species of fasciolopsis, who also maintained that the subdivision into *F. buskii*, *F. cuspei*, and *F. goddardi* represented a series of gradations of type. The question of nomenclature was one of priority. *F. fülleborni*, larger and more oval in shape, met with in Calcutta showed no armature, but Leiper had found spines; he himself had found similar specimens in Assam. The fluke was capable of powerful blood sucking, and was difficult to distinguish in the fæces from blood-clot. The symptoms were largely due to massive infestation and the blood sucking exerted by the parasites with consequent loss of blood. Thymol rapidly caused disinfestation and amelioration of symptoms. He did not consider the symptoms of anæmia, emaciation, &c., as due to simultaneous infection by ankylostoma, as Goddard had only found 2·9 per cent. of fluke disease infected with ankylostomiasis.

Dr. POWELL was satisfied that *F. fülleborni* and *buskii* were distinct species; he had met with the five cases of fluke disease in India also infected with ankylostoma.

Dr. COLE, in reply, did not regard the differentiation into species as warranted. Professor H. B. Ward had described the species *F. goddardi*, but this was now repudiated by Goddard himself. Concurrent infection with ankylostoma he regarded as rare and could be excluded from his Case 729, in which a total of 485 flukes had been passed while under treatment during a period of two months. Fluke disease in India was undoubtedly very uncommon, and this was borne out by Sir Leonard Rogers, who had not met with any cases.

Dr. A. CONNALL, W.A.M.S., in a paper on the results of

Examination of Chrysops for Filaria in West Africa,

said that Sir Patrick Manson had first suggested *Chrysops dimidiata* as a possible carrier of *Loa loa*, and this suggestion Leiper had ascertained to be well founded. Dr. Connal's observations had been made in 1917 and a number of feeding experiments had been carried out in the Medical Research Institute at Lagos. No fewer than 2255 specimens of *C. dimidiata* and *C. silacea* had been dissected, work which had been almost entirely conducted by Mrs. Connall. The district was one heavily infested by mangrove flies and the natives showed heavy blood infection by embryos of *Loa loa*. In the course of the dissections of 2255 specimens of Chrysops, of 2006 *C. silacea*, 16 had been found infected, and of 249 *C. dimidiata* 6 were found infected with *Loa loa*. Examinations were also made of the monthly results of Chrysops infection. May and June, the wettest months, provided the heaviest incidence of infection.

The PRESIDENT, in praising the value of Dr. Connall's observations, paid tribute to the excellence of Mrs. Connall's work at the London School of Tropical Medicine.

Dr. LOW stated that the host of *F. loa*, though not yet proved, might probably be Chrysops. Feeding experiments were attended by very great difficulties from the necessity of raising the insect from the pupa owing to the uncertainty of obtaining

an insect free from previous animal filarial infection. The geographical distribution of the fly and *F. loa* was very exact. Intermediary stages of filaria had been found in the muscles of Chrysops and not in the Malpighian tubes. The embryo of *F. loa* measured 1/16th inch in the proboscis of the fly, just as in the case of *F. bancrofti* and the mosquito.

TUBERCULOSIS SOCIETY.

A CLINICAL meeting was held at the Margaret-street Hospital for Consumption, London, W., on Feb. 28th, Dr. NATHAN RAW, M.P., the President, in the chair.

Dr. JOHN SORLEY showed a case of Bilateral Fibroid Phthisis in a girl aged 7, complicated by unusually extensive hairy pigmentary nævus, involving a large part of the trunk and thighs. This was followed by a demonstration of X ray plates of tuberculous cases.

Dr. WILLIAM GORDON (Exeter) read a paper on

Rain-bearing Winds and Tuberculosis.

The paper dealt in brief with the evidence in favour of two main contentions, that exposure to strong prevalent rain-bearing winds (1) increases the prevalence of phthisis, and (2) has an injurious effect on existing cases.

The starting-point of the observations was the fact that those rural sanitary districts of Devon which faced south and west—that is, with the aspect then considered ideal for a phthisis health resort—were just those which showed the highest death-rates from the disease. The influence of soil, rainfall, sanitation, and social conditions was excluded and the matter investigated further by taking a series of parishes classed as "sheltered" or "exposed," when it was found that the phthisis death-rate was much higher in the latter than in the former. To the obvious objection that small numbers tend to produce large exceptions to any law of incidence, could be opposed the fact that exceptions were so few as thereby only to increase the cogency of the law. In the Okehampton rural district the average death-rate in the exposed parishes was nearly five times as great as that in the sheltered, and the disproportion was equally striking in the Barnstaple district, results which have been confirmed recently by Dr. J. Brownlee. Equally decisive results were obtained in respect of the sheltered and exposed streets of Exeter. By applying to these investigations the principle of "the approximate isolation of influences," by which is denoted the systematic enumeration of all the known influences involved and their successive elimination as far as possible from the problem, Dr. Gordon considers that the rain-bearing prevalent winds have emerged from this severe test as one of the most powerful of all influences known to affect the death-rate from the disease. Corroboration of this view has come from Japan, the Sandwich Islands, the Falklands, the Faroe Islands, and Iceland. It explains, as nothing else can do, the exceptions and difficulties met with by other investigators who have endeavoured to account for the prevalence of phthisis on the basis of soil, geographical distribution, occupation, density of population, or other factors. Further, Delépine found, on mapping out the situation of 1524 farms which supplied Manchester with milk, that great differences existed with regard to the prevalence of bovine tuberculosis in them. Using the data so ascertained, the lecturer showed that tuberculosis was from twice to five times as prevalent in farms which were exposed, partially or fully, as in those which were similarly sheltered.

As to the influence of these winds on the course of the disease, evidence, though far from complete, is yet very suggestive. Records from sanatoriums in different localities, under varying conditions of wind and rain, in sheltered and exposed situations, and comparison of collective results are suggested as the lines on which future inquiry should run. Already, however, they point to such an influence being manifested, while as regards the average duration of fatal cases under the contrasted conditions it is found that a higher proportion of cases of shorter duration (short cases, those lasting 9 months or less; long, 15 months or more) occurred in the exposed areas and a higher proportion of longer duration in the sheltered areas. Sömme has recently drawn attention to the evil effects of wind and rain on sanatorium patients in Norway, the number of those discharged as improved being lessened after exposure to a period of persistently bad weather. The limits of effective shelter may be approximately defined in terms that a ridge 100 ft. in height will afford effective shelter to half a mile of flat country level with its base and more or less shelter to nearly half a mile further.

Dr. CAMPBELL MCCLURE cited the fate which befell the establishment of an annexe for consumptive patients in connexion with the French Hospital at Brighton. Being on the sea-front, it had to be closed as the results were found to be bad. Transferred to more sheltered conditions at Hastings the results have been good. Moral—the sanatorium should not always be blamed for bad results.—Dr. H. A. ELLIS stated that he had, when at Middlesbrough, to stop sending his patients to Redcar and Saltburn on the Yorkshire coast as the results were so uniformly disastrous, due to the effect of the prevalent north-east wind. He suggested that Ceylon, with its two monsoons, would be an admirable locality for the study of the effects of the winds on phthisis.—Dr. JANE WALKER considered that the fact that the patients in the Norwegian sanatorium, alluded to by the lecturer, were allowed to struggle against driving rain during their walks should be discounted in estimating the evil effects of the treatment.—Dr. F. RUFENACHT WALTERS commented on the exhausting effects of walking against strong winds, and the carrying of wet clothing in the case of ambulant patients, and the tendency to keep windows closed in streets exposed to such winds.—Dr. HORACE WILSON, from personal experience of practice in the Isle of Man, stated that phthisis was much more prevalent south of a ridge which separates the island into two parts than north of it, the latter being more sheltered and protected from the prevailing winds.—Dr. SORLEY pointed out that, despite the continuance of prevailing winds, the death-rate from tuberculosis was rapidly decreasing, and probably the disease itself was also less prevalent nowadays, so that other factors must be involved.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.

A MEETING was held on Feb. 17th, Dr. F. J. SADLER, the President, in the chair.

Dr. J. S. FAIRBAIRN (St. Thomas's Hospital) opened a discussion on the question

Does Midwifery Practice and Teaching Require Reformation on Physiological Lines?

He said that midwifery was an integral part of medicine, being part of the larger subject of reproduction, and the importance, so tardily recognised, of the care of the rising generation to the national health and welfare, has given it a new and enhanced value. The present-day tendency in medicine is to study disease from the physiological side and discover the earliest evidence of disturbed function, and this tendency ought also to be our attitude towards midwifery practice. Dr. Fairbairn pointed out that this had not been the case in the past, as shown by the neglect of the physiological feeding of the infant for the perfecting of substitute feeding, at which great success has been attained, but along non-physiological lines. Considering the application of physiology to the conduct of labour, Dr. Fairbairn said we had hitherto concentrated on the artificial termination of labour by instrumental aid; the attendant's biceps had been the substitute for the uterine muscle in cases of indifferent uterine action. We should not argue on the sterile question as to when and when not to use forceps and the factors that interfere with good uterine action. We should discuss how their use may be eliminated, forceps delivery being regarded as the result of a failure to secure normal and physiological parturition. The two factors to which most of the cases of delayed labour in otherwise normal cases could be ascribed were emotion and fatigue. The discussion should turn on suggestions as to how these factors could be avoided, and whether the use of sedative drugs to diminish sensitiveness and secure rest was less physiological than operative interference. Dr. Fairbairn concluded by a reference to the future of midwifery practice, to the respective spheres of the practitioner and the midwife, and to the training and teaching of students.

The PRESIDENT emphasised what the speaker had said as to the importance of controlling the emotional factors which tend to disturb labour.—Mr. MILES PHILLIPS considered the pathological aspect of labour as being the one most calling for practical attention.—Mr. W. W. KING also thought that labour, from the point of view of the practical obstetrician, was best regarded as pathological.—Dr. SAMSON MATHEWS and Dr. W. E. HOULBROOK also spoke.

Corrigendum.—In our last week's issue lines 9 and 10 from top of first column of p. 488 should read "the total mortality might be anything from the *15 per cent.* given by Sir William Hale-White to over *50 per cent.*"

Reviews and Notices of Books.

EXOPHTHALMIC GOITRE AND ITS NON-SURGICAL TREATMENT.

By ISRAEL BRAM, M.D., Instructor in Clinical Medicine, Jefferson Medical College, Philadelphia; Physician on Visiting Staff of Philadelphia General Hospital. London: Henry Kimpton. 1921. Pp. 438. 32*s*.

THE author of this work says in his preface that although "many books have been written on exophthalmic goitre—some mediocre, others very valuable—but little, if any, thought or space is given to remedial measures which do not require the knife." He hopes, among other things, to convince the reader that exophthalmic goitre does not belong to the realm of surgery. The burden of the book is "the futility of surgery in the therapeusis of the disease." In Dr. Bram's opinion any improvement that may be noticed after operation is of short duration.

Dr. Bram has been neither generous nor just to surgeons, and has reviewed surgical treatment with bias. His indictment is founded on certain premisses which are at present too controversial to be admitted as a basis for argument, such as the mortality of the operation, which he considers to be higher than the stated 5 per cent., while other authorities contend that with suitable precautions and care in selecting cases the surgical mortality is practically nil. Moreover, the mortality of the disease, apart from operation, must be taken into account. To say that patients only die from exophthalmic goitre when non-surgical treatment is "too greatly postponed" is contrary to all experience. That "many patients succumb to immediate post-operative acute exacerbations of hyperthyroidism" is quite untrue for this country if it means to imply that many patients who survive the operation so succumb. Dr. Bram states that "recurrences of goitre and symptoms mean multiple operations with the attending dangers." It is true that more than one operation may be necessary to attain the best result. But this is not because there is a recurrence of the goitre, but because a sufficient amount of the gland has not been removed at the first or even the second operation. It really amounts to doing the operation in stages for greater safety, for there is less risk with the second operation than with the first. Another apprehension put out by Dr. Bram is that the patient, "hypersensitive to the extreme degree, may die of fear or worry over the operation or even by light infection following surgical procedures." This is seldom encountered in practice; any great fear or dread of the operation in the patient is a well-recognised contra-indication to operation. The meaning of Dr. Bram's statement that "the frequent presence of sugar in the urine is a contra-indication to surgical procedure" is not clear to us. Certainly, if there is evidence of diabetes operation is contra-indicated, but this is not common. The danger of death by status lymphaticus, so dreaded by him, can be avoided by employing local anæsthesia, and that of tetany as a sequela due to the removal of the parathyroid glands is sufficiently remote; an eminent surgeon has observed it only once in 700 cases. Injury to the recurrent laryngeal nerve directly through the operation or subsequently by pressure of scar tissue does, as Dr. Bram says, sometimes occur, but it does not lead to serious disability as only one cord is paralysed. Post-operative myxœdema is rare, and can be effectively treated with thyroid preparation. It is certainly less distressing to have myxœdema than Graves's disease. A loss of initiative to get well and a general disgust with life and the medical profession after operation have not been met with in our experience.

The author has conjured up a number of bogeys which have no real substance, and his use of quotations is not always disingenuous. He says "far-sighted surgeons in all parts of the world are now becoming sceptical with regard to their accustomed method of treatment of this disease and are beginning to lag in enthusiasm with respect to surgical interference in exophthalmic goitre." He then quotes the following words from the writings of Mr. James Berry, whose reputation as a thyroid surgeon is world-wide.

> "Reviewing the whole subject of the operative treatment of exophthalmic goitre, it seems to me that it may reasonably be doubted whether surgical treatment is not on the whole worse than useless. ..... None of the operations that have hitherto been practised upon the gland, the thyroid vessels, or the sympathetic are free from risk. Actual proof that any of them actually cure the disease is at present wanting. The sympathetic operation, although it may, and probably does to a slight extent, diminish the exophthalmos, does not usually cure it completely, and may be followed by very serious results, such as inflammation of the eye and even blindness. The larger operations upon the gland itself, such as extirpation, are attended with so much danger as to make them undesirable. ..... With regard to ligature of the thyroid vessels, it still seems to me doubtful whether this proceeding is followed by cure sufficiently often to justify its performance."

These words are taken from Mr. Berry's treatise on "Diseases of the Thyroid Gland and their Surgical Treatment," published as long ago as 1901. This work is entered in the bibliography, but its date is omitted. Comment is needless. Since 1901 Mr. Berry's views have very much altered, as the author could have seen for himself had he referred to Mr. Berry's Lettsomian lectures,[1] or his review of the present position of surgical treatment of exophthalmic goitre.[2] Dr. Bram's account of surgical treatment is grossly incorrect as a representation of present day practice. He jumbles together all the various operations which have ever been suggested, and adds some which have never been even entertained, and gives the lot as specimens of what surgeons have been "doing in the past decade in different parts of the world and during moments in the career of the same surgeon." The recent discussions at the Royal Society of Medicine show how few of these operations are now used by surgeons.

We have quoted enough to show that Dr. Bram does not present fairly the pros and cons of surgical treatment of Graves's disease. Judgment must follow results, and while the time may come when exophthalmic goitre may be always successfully treated by medical means, surgical treatment at present affords in some cases better results than any other known treatment. The treatment which Dr. Bram himself favours has been in use for many years, and is what is known in the middle west of America as the Forcheimer treatment. It consists essentially in the administration of hydrobromide of quinine in 5 gr. doses three times a day. According to Dr. Bram it should be continued day after day for at least a year after all symptoms have disappeared, and so if a patient has already had the disease three years when the treatment is started, it will take three years more before a relative cure is effected. Dr. Bram combines the quinine with other remedies and gives 12 formulas for capsules, so that the practitioner can ring the changes during the long period of treatment. A little veronal may be added if there is nervousness; a little ergotin if vascular disturbance; a little iron or arsenic if anæmia; lecithin if debility, and so on. This persistent quinine treatment, combined as it is with other methods commonly employed, may, in some cases, be followed by a relative cure.

We do not in any way underrate the importance of medical treatment, and physicians are more or less agreed as to the lines on which this should be carried out. The basal metabolic tests increasingly used in this country as well as in America will serve to indicate the progress of the patient with an accuracy formerly unknown. Many cases get well under medical treatment only, and all cases should first have a fair trial of medical methods. It is agreed that everything should be done to put the patient on a higher plane of health. If Dr. Bram were to control his prejudices, cut out his redundancies, and thus compress the book to half its present size, he might still transform it into a useful handbook for the general practitioner, and we hope he will do so.

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[1] Transactions of the Medical Society, vol. xxxvi.
[2] British Journal of Surgery, vol. i., No. 4, 1914.

PHYSIOLOGICAL CHEMISTRY.

A Text-book and Manual for Students. Third edition. By ALBERT P. MATHEWS, Ph.D., Professor of Biochemistry, University of Cincinnati. London: Baillière, Tindall, and Cox. 1921. Illustrated. Pp. xiv. + 1154. 40*s*.

THIS new edition of Professor A. P. Mathews's well-known book on physiological chemistry is slightly disappointing, for it appears to be only a revised edition of the former work with a few additions, mostly in connexion with the practical section which forms the last 250 pages. Otherwise the main change is in the chapter on vitamines. This subject is developing so rapidly at present that it is scarcely possible to write an up-to-date account of it. It is a subject, too, about which so much has been written and spoken that the task of the author is all the more difficult. The various experiments and writings require the most careful sifting before we can arrive at the truth. Professor Mathews has, however, given a very lucid introduction to the subject. The practical portion is overloaded for the ordinary student, but of the utmost value to the honours or post-graduate student. It would have been a help if some distinction had been made in the type between elementary and advanced exercises. Among the small amount of new matter introduced we notice particularly the method of Dakin for separating the amino-acids, which is sure to be extensively tried by other workers in due course; also the formula by Kendall for thyroxin, the active principle of the thyroid gland.

The book can be thoroughly recommended. Professor Mathews is particular to present the real facts of a subject and omits or severely criticises unsupported theories. His chapter on blood coagulation is the best example of this. All the facts as observed by Wooldridge are carefully described, and it is explained how they represent the actual process. The author finds no use for the extravagant theories of the German workers to explain this complex phenomenon. In another edition all biochemists will wish Professor Mathews to give in a similar way the facts about immunity; here again theories are so interwoven with experimental data that it is almost impossible to ascertain the real position.

We can all understand what a laborious task it has been to write a large text-book and keep the whole of it up to date, especially in a subject like bio-chemistry, which is extending so rapidly in all directions. This text-book is really the only modern one actually written in our language, the others being translations, though we have numerous books on the practical part. Finally, we regret to see so many misprints.

CROWLEY'S HYGIENE OF SCHOOL LIFE.

Fourth edition, revised. By C. W. HUTT, M.A., M.D., D.P.H. London: Methuen and Co., Ltd. 1921. Pp. 450.

THE fact that within four years three editions of this work have been issued, is sufficient proof alike of the interest and importance attaching to the subject, and of the ability with which Dr. Hutt has met the need of a cheap and handy guide for the school medical inspector and administrator. The passing into law of Mr. Fisher's Education Act of 1918 has greatly widened the possible range of school medical activities, and Dr. Hutt has taken advantage of the present re-issue to introduce references to some of the most important questions arising out of this Act. The bearing of the new provisions on the employment of school children in wage-earning occupations is shortly discussed in Chapter XIV.; while among the appendices are reproduced the gist of the circulars issued by the Board of Education regarding the establishment of nursery schools and in connexion with the medical inspection of pupils in secondary and continuation schools. In view of the probability that most of the sections of the new Act will lie fallow for some time owing to the present need for rigid economy, no doubt Dr. Hutt has done well to restrict himself merely to indicating these possible extensions of the school doctor's work without discussing them in any detail in the text.

Brought thus up to date, the work remains the best handbook we possess at present for the use of the school medical inspector.

REGIONAL SURGERY.

De Ruyter und Kirchhoff's Kompendium des Speziellen Chirurgie. Neu bearbeitet von Dr. F. ERKES und Dr. B. O. PRIBRAM. Berlin: Karger and Co. 1921. Pp. 422.

THIS surgical vade-mecum is now in its fourteenth edition and has undergone considerable revision at the hands of its present editors. The 118 "illustrations" are all simple diagrams and help to elucidate the text, which is necessarily condensed. The book has evidently found a secure place in the category of "potted" works on surgery, though the index appears to us to be inadequate for a manual which must be primarily useful for purposes of rapid revision before examination.

SURGERY OF THE COLON.

La Chirurgia del Colon. By Professor ARISTIDE MATTOLI. Rome: War Office Stationery Department. 1920. Pp. 137.

THE author's series of 64 cases of operation on the colon forms the basis of this monograph. The operations are classified under 10 headings, one of the chief of which is, of course, colectomy. Professor Mattoli does not, however, practise this operation for intestinal stasis; his records show that for this condition he prefers appendicostomy, lateral anastomosis (transverso-sigmoid or cæco-sigmoid), or ileo-sigmoidostomy. The monograph forms a full and useful summary of the operative treatment of diseases of the colon.

THE HORTON WAR HOSPITAL.

The Story of the Horton (County of London) War Hospital, Epsom. By Lieutenant-Colonel J. R. LORD, C.B.E., M.B., Officer Commanding. London: W. Heinemann. 1920. With 7 plates and a plan. Pp. 264. 12*s*. 6*d*.

BEFORE the war Lieutenant-Colonel J. R. Lord was the medical superintendent of the Horton Asylum at Epsom, afterwards converted into a military hospital, and he has now compiled an interesting record of the work done there for sick and wounded soldiers. The first batch of patients arrived in May, 1915, and when the hospital closed in the autumn of 1919 some 45,000 patients of all ranks (including naval officers and men) had received treatment in the institution. The conversion of an asylum into a large military hospital necessarily involved difficulties; these were successfully overcome, and the book tells a story of services generously rendered to our wounded soldiers by all sorts of people. Any profits that may accrue from its sale will be devoted to the erection of a war memorial in the hospital chapel.

PERSONAL BEAUTY AND RACIAL BETTERMENT.

By KNIGHT DUNLAP, Professor of Experimental Psychology in the Johns Hopkins University. London: Henry Kimpton. 1920. Pp. 96. 6*s*.

IN the first part of this book the author maintains the vital importance of beauty to the race, and in the second part develops the theme that beauty should be conserved by the pursuit of certain ideals. To Professor Dunlap the main importance of marriage as an institution is its primary function of the procreation of children; the spirit of comradeship which arises between two people whose lives and interests are so closely interwoven does not impress him so strongly. He regards the common assumption that the maternal instinct is far stronger than the paternal as fallacious. The Greek ideal of physical beauty admired by Professor Dunlap is assuredly desirable, but beauty belongs not to form alone, and connotes other qualities which human betterment demands.

JOURNALS.

British Journal of Dermatology and Syphilis.—In the February number is an extended version of the Case of Human Glanders by Dr. F. H. Jacob and others which appeared in THE LANCET of Nov. 6th, 1920 (p. 941). The illustrations include an excellent coloured plate of the cutaneous lesions of the trunk. Professor H. M. Turnbull describes in great detail the different cells found in the inflammatory foci, and shows that, although the lesions resemble those caused by other pyogenic microbes, they differ in certain important particulars. Vascular lesions are conspicuous, and the inflammatory reaction is strictly vascular in its distribution. Further, the dense leucocytic infiltration is associated with great activity of the fixed tissue cells, which exhibit a high degree of phagocytic power. The giant cells, often described as characteristic elements in the glanders lesion, were, apparently, absent. It is remarkable that all attempts to isolate the infecting organism failed, and the diagnosis was only established by the demonstration in the lesions of organisms morphologically resembling the *Bacillus mallei* and the similarity of the inflammatory reactions to those occurring in cases of proven glanders, which is something of a triumph for the histologist. Pathologists will welcome this description by a recognised authority of this rare and most difficult type of inflammation.—In a brief article Professor C. Rasch, of Copenhagen, describes the effect of the sun's rays upon a syphilitic eruption in a girl of 19. Macules and papules, otherwise almost general, were absent on the upper part of the chest and back left uncovered by a low-cut blouse. He raises the general question of the value of insolation in the treatment of syphilis.

Journal of Industrial Hygiene. London: Macmillan and Co., Ltd. 30*s.* annually; single copies, 4*s.*—A series of articles dealing with the dust hazard in industry have recently appeared in this journal. The first, by Messrs. E. S. Longfellow and A. C. Fieldner, published in the September number, discussed the efficiency of the Palmer apparatus for determining dust in air. The method employed in this apparatus, which is being used extensively in the United States, is to wash the dust from a measured flow of air with a water spray. Two tests were applied: the first was the Tyndall light effect in which one stream of tobacco smoke, after passing through the Palmer apparatus, was admitted to a Tyndall box, while another stream passed directly into another box. Similar beams of light were passed through these boxes, and the proportion of pure air necessary to dilute the unfiltered smoke until the light effect was the same in the two boxes was determined. Only 13 per cent. of tobacco smoke was found to have been removed, while, when air containing finely divided silica dust was filtered, 30 per cent. of the dust disappeared. The second method was to weigh the dust retained from a dusty air sample in the Palmer apparatus and compare it with the weight of dust removed from a similar sample by the Cottrell method of electric precipitation. The Palmer apparatus retained about 45 per cent. by weight of the dust. Clearly the value of this apparatus is for comparative rather than for absolute determinations of the amount of dust present, and statements as to the dust content of air are unreliable unless the method of determination used is stated.

Two other articles by Dr. C. E. A. Winslow and L. Greenburg in January and February deal with industrial tuberculosis and the control of factory dust. These authors, when discussing the prevalence of phthisis in industry, are certainly in advance of some American authorities, since they appreciate the paramount influence of age-distribution when considering statistics; but they show a tendency to ascribe excess of phthisis in any industry to dust without considering whether dust capable of predisposing to phthisis exists in the industry. The argument goes in a circle; industrial phthisis is due to dust, therefore there must be dust; therefore the dust causes the phthisis. America will presently discover that there is not always harmful dust present, that some types of phthisis in industry have nothing to do with dust, and that the type caused by dust (silicosis) is always associated with other forms of pneumonoconiosis. At present there is much loose thinking and writing, for the most part based on Hoffman's unfortunate statistical data regarding mortality from respiratory diseases in dusty trades—a fair proportion of which are not dusty at all. We recommend to the writers the excellent summary of the position contained in the second Report of the Royal Commission on Metalliferous Mines and Quarries published in 1914, which seems to be quite unknown in the United States.

Their second article reports a valuable set of determinations made under comparative conditions as to number of particles and weight of dust found under various processes. The determinations were made with the Palmer apparatus; and the plea is put forward for standardisation, since weight alone is a fallacious guide; particles of a diameter greater than 10 microns cannot enter the pulmonary alveoli, and should not be considered. The number found per cubic foot of air varied from 7000 to 50,000 on different days in the country, reached 153,000 in city air, and 50,000,000 in an axe-grinding shop. The authors establish the value of efficient exhaust systems for dust removal, and show how a reduction in suction head in the exhaust ducts is quickly followed by an increase in air dustiness. Special attention was directed to protecting men employed in the unusually dusty process of sand-blasting; and the method employed in this country of protecting the worker by a helmet into which a supply of fresh air is driven was found to give an efficiency only slightly increased by the additional use of a respirator. The authors suggest as a practical standard that the dust in the air of workshops should be kept down to an average of 0·03 mg. per cubic foot of air and should never exceed 0·06 mg.; and, further, that such dust content of the air should be kept under a maximum of 300,000 one-fourth standard unit (1/10 micron) particles per cubic foot, and should not average over 200,000 particles. This paper is of considerable interest.

Another article worthy of note, by J. P. Baumberger and E. G. Martin, on Fatigue and Efficiency of Smokers in a Strenuous Mental Occupation, appeared in the October number. Definite results were obtained by no means favourable to the use of tobacco. Telegraph operators were observed; heavy smokers failed to maintain the level set by light smokers, they exhibited a lessened ability to sustain output to the end of the working day and a diminished capacity for reacting by increased effort to an increase in volume of business. But somewhat unexpectedly the heavy smokers showed a better output during the first hours of the day, although not nearly enough to compensate for their lowered efficiency toward the close of the day. The subject of fatigue also receives attention in the January issue, which contains a reply by Josephine Goldmark and Mary Hopkins to a criticism of Dr. Drinker's on their report upon comparison of an eight-hour plant and a ten-hour plant.[1] The reviewer had expressed greater appreciation of the pioneer work done by the Health of Munition Workers Committee in this country than of the American report. The reply, while not entirely convincing, makes out a good case for reconsideration; but we regret to find no attempt made to answer the criticism which appeared last August in THE LANCET upon this report. Here we would again emphasise that we find again and again writers in this Anglo-American journal apparently quite unaware of work carried out on this side of the Atlantic; surely the British editors ought to keep the contributors better up to date.

Closely associated with the subject of fatigue is an article by D. S. Gates, which appeared in December, on a Statistical Study of Accidents in Certain Textile Mills. Accidents were found at a maximum at 9 A.M. and 3 P.M., and appeared to be influenced by high speed of work rather than fatigue. Youths, aged 18 years, sustained the greatest number of accidents. Males had nearly twice as many accidents in proportion to their numbers as females; but they undertook processes with greater accident risk. Certain overseers were found with an undue proportion of accidents among their groups of operatives, the excess depending on the risk of the processes. Mr. Gates's paper, although not establishing any new underlying factor in accident causation, is an excellent example of the way in which any industrial concern may ascertain by simple investigation where accidents are occurring and why. The engineer thereby is guided in his work to important points.

One of the most important of recent articles was contained in the December issue on Experimental Trinitrotoluene (T.N.T.) Poisoning, by Dr. S. R. Haythorn. This article summarises the experimental work done in America on this question and its appearance fortunately synchronises with that of the recent report of the Medical Research Council on T.N.T. poisoning and the fate of T.N.T. in the animal body. Dr. Haythorn experienced the same difficulty as British workers in obtaining typical pathological lesions in animals. Nevertheless, his experiments led him to conclude that the respiratory tract, through the inhalation of T.N.T. in the form of fumes or dust, was negligible as a portal of entry for the poison; on the other hand, both the skin and the alimentary tract appeared important. Feeding was the form of administration adopted; and 19 out of 28 guinea-pigs exhibited liver lesions, but only one instance could justly be called acute yellow atrophy. Simultaneous administration of alcohol had no effect on the progress of toxic symptoms. Although toxic jaundice was difficult to obtain, severe anæmia, not unlike aplastic anæmia as seen in human beings, was readily produced in guinea-pigs. The author details the result of examining the various organs of the body, laying stress upon blood changes. His summary is:—

"The chief factors leading to the terminal pathological findings appeared to be hæmolysis, probably associated with the formation of methæmoglobin, hypersecretion of bile, general asphyxiation of all tissues, direct toxic action of T.N.T. on the liver, bone-marrow hyperplasia, and final failure of kidney function."

This paper, which contains a useful bibliography, is a valuable contribution to knowledge of T.N.T. poisoning.

[1] Public Health Service Bulletin, No. 106.

THE LANCET.

LONDON: SATURDAY, MARCH 12, 1921.

The Dangerous Drugs Act and the Draft Regulations.

THE Dangerous Drugs Act, it will be remembered, was the outcome of an International Conference, when it was agreed that measures should be taken to limit and control the distribution of certain dangerous drugs. Primarily, this limitation was intended to check the sale and exportation of these drugs to nations where, it was alleged, grave physical deterioration was resulting from their employment. Recent events, however, appeared to indicate that it was necessary for restrictions upon the distribution in the British Empire to be made more stringent, in spite of the protection given by the Poisons and Pharmacy Act of 1908, with the Schedule attached thereto, which together had hitherto been deemed sufficient safeguards. Hence the scope of the Draft Regulations under the Dangerous Drugs Act was extended, and although several versions have appeared in the press,[1] we believe the final form is not yet ready to be placed before Parliament. It is to be regretted that these Draft Regulations have not been more sympathetically received. They have been made almost a party question, and instead of being greeted by serious attempts to improve them or to seek to understand their scope and their effect both on the medical profession and on the dispensing chemist, a chorus of condemnation has occurred which may gravely imperil the working of a valuable Act.

The insufficiency of the powers claimed under the Pharmacy Act scarcely needs demonstration. That they have not led to the genuine control of the distribution of such drugs as morphine and cocaine has been shown again and again in the published records of cases of poisoning. Numerous fatalities have indicated that the existing regulations have been interpreted with great laxity. In a fairly recent case it was evident that although the inordinate quantity of the drug supplied might have caused suspicion, no steps were taken to question the validity of the prescription, which purported to be written by a doctor, but was suspected to be a forgery. While the dispensing chemist is undoubtedly the individual who is primarily affected by any regulations under the Dangerous Drugs Act, it must be remembered that, in his business, he has in past times been the chief agent for the distribution of drugs connected with the so-called drug habit. It is only comparatively recently that in this connexion morphine has been largely replaced by cocaine or by derivatives of morphine or cocaine, and an illicit traffic in these drugs has given rise to numerous prosecutions outside the ordinary channels through which they might have been expected to enter this country.

Any regulations to check the importation, the possession, and the unauthorised employment of these drugs, must be wide enough in scope and yet sufficiently detailed to cause a certain respect for the law, and for the penalties entailed through reckless carelessness or disobedience. When the Draft Regulations have passed through a process of adjustment they will not, we believe, be found irksome to the medical prescriber in private or in hospital work. They have been misrepresented by persons with imperfect acquaintance with their details, or by persons who prefer that the past conditions, with all their risks, should be maintained. As will be seen from our Parliamentary report, the Home Secretary has offered to exempt medical prescriptions containing narcotics from revelation of contents, and to meet the difficulties of the dispensing doctor. Further consultation with doctors, dentists, pharmacists, and veterinarians should ensure the removal of hardships, and to this end a watching committee of Members of Parliament has been appointed.

[1] THE LANCET, Jan. 15th, p. 134.

Bilharziasis and its Treatment.

THE article by Professor H. B. DAY in this issue of THE LANCET, dealing with the treatment of bilharziasis in Egypt upon an extensive organised basis, constitutes another landmark in the therapeutics of a widespread and distressing malady. We note that an analysis of this large series of cases—one thousand in all—confirms the specificity of antimony tartrate for bilharziasis by the intravenous route, a method introduced by Dr. J. B. CHRISTOPHERSON in Khartoum and published in a series of papers in this journal over two years ago. An interesting addition is made to the series to-day, in which Dr. CHRISTOPHERSON sums up his experience upon the intravenous injection of antimony tartrate in the range of conditions for which it is appropriate. Meanwhile, during the last year the treatment of bilharziasis has been organised on an extensive scale in the Kasr-el-Aini Hospital, Cairo. Intravenous injections of antimony tartrate are now given as a routine method of treatment in the out-patient department. That no untoward symptoms have been noted and that this method has been successful in curing the majority of disease would indicate that the toxic effects of antimony, when properly given, have been somewhat overestimated, for we learn that the majority of patients returned to work immediately after treatment. Although the number so far treated has been comparatively large, and although the system instituted at Kasr-el-Aini is to be expanded throughout other parts of the Delta, Professor DAY holds out no hope that this disease will be extirpated from Egypt by any such curative measures. The proportion of the population infected with bilharziasis in one form or another is so high and the chances of reinfection in such an agricultural population so great, added to the fact that rats and other lower animals are susceptible to infection, that there is little possibility of banishing the disease, save by a combination of vigorous sanitary measures directed against the intermediary hosts of the parasite, together with wholesale intravenous therapy.

In treating the Egyptian fellaheen in the out-patient department Professor DAY and his colleagues were bound to encounter many difficulties arising from various causes. We learn that one-third of the patients ceased attending after one to three visits; 313 received less than 5 gr., only one-quarter of the total more than 15 grs. Directly amelioration of their more urgent symptoms sets in—that is to say when the activities of the

bilharzia parasites are but temporarily suspended—patients would cease to attend. In order to achieve a permanent cure at least 13 gr. of antimony tartrate are necessary, though still larger amounts are desirable; only 19 cases of the series received more than 30 gr. As CHRISTOPHERSON originally pointed out, the effect of the antimony is primarily exerted upon the ova themselves, and they become shrivelled and blackened. Upon the parent trematodes the action of the drug is cumulative, and does not take effect till a total of 9 gr. has been administered. Treatment must be continuous, for if interrupted for any length of time the parasites are given a chance of recovery from the primary intoxication. For an adult daily injections of 1 to 2 gr. are advocated during the first week, followed during the second and third by 2-gr. injections given on alternate days. Antimony tartrate has the same effect upon intestinal bilharziasis—that is to say, upon *Schistosoma mansoni*—as it has upon the vesical disease caused by *S. hæmatobium*. The drug has been given in a more concentrated form than has hitherto been customary with perfect safety—that is, in a strength of 6 per cent. (1 gr. to water 1 c.cm.). Emetine also appears to be toxic to the bilharzia parasites, as has been claimed by DIAMANTIS and ERIAN; it is indicated more particularly in the infantile form, but more exact observations are required before this point can be settled. It has been suggested that it may exert a deleterious effect upon the ova but not upon the adult trematodes. At any rate there is little probability of this drug supplanting antimony tartrate in the routine treatment of this disease, as the cost of emetine injections on a large scale would be prohibitive. Intramuscular injections of colloidal antimony are said to have given encouraging results, and the advantages of the intramuscular over the intravenous route of injecting antimony in out-patient practice are so obvious in dealing with an illiterate population as to need no further comment. At present, however, this method is not likely to be utilised on a large scale, these preparations being unstable in the tropics and their cost is considerable. It will be interesting to learn whether the first favourable impressions of this preparation will be borne out by further experience. A few of Professor DAY'S cases suffered from a coincident infection with *Filaria bancrofti*, and it is stated that a temporary diminution in the numbers of circulating filarial embryos was noted after the antimony injections. A considerable amount of caution should be observed in attributing the fluctuations to any direct effect of the drug upon the embryos; as has been pointed out by Dr. G. C. LOW in recent numbers of THE LANCET,[1] unaccountable variation is commonly noted in untreated cases of filariasis. Therefore the claim of Sir LEONARD ROGERS that antimony tartrate is lethal to some extent to microfilariæ, rests at present upon a rather insecure foundation. It may be, as Dr. CHRISTOPHERSON suggests, that their sheaths are quite impermeable to the drug.

We are glad to note that the Ministry of Pensions are applying the lessons gained in the Soudan and Egypt to sufferers from this hitherto intractable disease amongst ex-Service men in this country. We understand that the majority of recent infections—that is to say, men infected with bilharziasis during the recent war—have so far been effectively treated and cured in the special clinic established under Dr. CHRISTOPHERSON, from which some of the records in his present article have come, but there is no reason why the 500 or so ex-soldiers who are still in receipt of disability allowance on account of this disease should not largely disappear from the pensions list. We understand that a considerable number in receipt of pensions still await treatment. The ruling of the Ministry appears to be that only those who contracted the disease during the recent war, or those originally infected previous to 1914 whose condition has been aggravated by recent war service, are entitled to receive free treatment, together with allowances and the other benefits bestowed upon disabled soldiers. There remains, however, quite an appreciable number of pre-war cases, dating in some instances from the South African War or attributable to service in Egypt or South Africa at some time previous to 1914, who are precluded from benfiting under the scheme. These men, in the present circumstances, cannot possibly afford treatment at their own expense, and consequently they must continue to draw their pensions, to the ultimate disadvantage of themselves and at the expense of the tax-payer. If any rule precluding a body of deserving men from treatment exists, we would recommend its reconsideration in order that these equally meritorious cases should receive the benefits of the antimony treatment. The matter is a humanitarian as well as an economic one. A sum estimated at some £10,000 per annum is at stake, and we suggest this could be saved.

[1] THE LANCET, Sept. 11th, 1920, and Jan. 29th, 1921.

Personal Precautions against Encephalitis Lethargica.

THE Memorandum[1] on encephalitis lethargica issued by the Ministry of Health concludes with a clear statement of the precautions which it is advisable for the individual to take against infection:—

The other occupants of a house in which a case of encephalitis has occurred or is being treated may be assured that the disease is one of low infectivity, and that very little risk is run by association with the patient. At the same time it is desirable that such association should be limited to what is necessary for proper care and nursing, and the patient should be well isolated in a separate room.

School-children in the affected household may be kept from school, as a precautionary measure, for three weeks after the isolation of the patient. There is no necessity to place restriction on the movements of other occupants provided they are frequently examined and remain well. Those in contact with the case, however, should be advised to use antiseptic nasal sprays or douches, and to gargle the throat with solutions such as those advised for influenza.

For example, any of the following may be used: (1) 1 per cent. solution of peroxide of hydrogen; (2) a solution of permanganate of potash, 1 in 5000, in 0·8 per cent. solution of chloride of sodium (common salt); (3) liquor sodæ chlorinatæ, 0·5 per cent. These solutions can be used as ordinary throat gargles or snuffed up the nostrils, or applied by an efficient spray.

It is desirable that any persons in the infected household who suffer from sore-throat or other symptoms suggesting an abortive attack should be treated from this point of view and isolated as far as possible until they have recovered. The sick room should be thoroughly cleansed and disinfected at the end of the illness.

[1] Memo. 45/Med. H.M. Stationery Office

Annotations.

"Ne quid nimis."

INSURANCE MEDICAL RECORDS.

IN the House of Commons on Monday last a categorical question was put to Dr. Addison concerning the insurance medical records. He was asked whether he had received any complaints regarding the new form of medical card under the National Health Insurance scheme; whether he was aware that objection was taken to the new card on the ground that it was too inquisitorial; and whether he would give this objection his consideration. To this question Dr. Addison replied that the number of complaints which he had received about the insurance medical records was quite insignificant, consisting of representations from five out of 10,000 Approved Societies and branches, none from any of the insurance committees, and nine, mainly on points of detail, out of the 150 panel committees representing the medical men on the panel. The card, he said, was in substitution for two others used since the commencement of the Act, and had been designed mainly to give to insured patients the advantages enjoyed by private patients in those practices where doctors kept records, and were thereby enabled to be guided in treating current symptoms by reference to the patient's previous medical history.

To a further question he repudiated having invented the form of record card, or rather the revisions of the card, putting the responsibility on a Committee consisting solely of members of the medical profession—a large percentage of them being men in insurance practice. The accuracy of the latter reply has since been challenged on the grounds that there are three lay civil servants on the Committee, that the card was not designed wholly by doctors, and that 17 or 18 per cent. of panel doctors on the Committee could not be called a large percentage. The gist of Dr. Addison's reply should do away with the contentions in the lay press that the medical profession is seething with discontent—as we have read in one quarter; and that many thousands of protests have been formally registered—as we have read in another. There is a certain amount of dissatisfaction, as our readers know, but there has been no reflection whatever of such a large agitation in the medical journals, where the improvement of public health, the advance of science, and the maintenance of a right professional status form the single programme for advocacy; and the inference is that this story of wide disapproval has its origin in, or is supported by, political partisanship. When the Ministry of Health came into being, as the result of unanimous feeling that the institution of such a State Department had been too long delayed, medical men hoped that on questions of public health the party politician would be content to subordinate his views to the general good. That was sanguine, but even now the hope is alive with some of us. Undoubtedly the early work of the Ministry of Health has been hampered by complaints based upon ignorance of medical affairs, but in Medicine the truth sooner or later always emerges from misrepresentation. We are not asking, because the Ministry of Health is concerned with medical interests, that its sayings and its doings should be regarded as without the pale of public judgment; nor can we be blind to the fact that every Ministry of Health must be associated with a Government, when the party politician will assuredly attack it, if by so doing that Government can be discredited. But we are urging that such attacks should be taken at their value, when they will not be found to damage the public health more than temporarily.

REINFECTION IN SYPHILIS.

ACCORDING to Dr. Charles Mallory Williams, associate professor of dermatology at the Post-Graduate Medical School, New York, who records an illustrative case, the improvement in the treatment of syphilis during the last ten years has been accompanied by a great increase in the number of reported and apparently authentic cases of reinfection. Benario, who collected 96 cases from the literature in 1914, laid down the following requirements to establish a diagnosis of reinfection: (1) a positive clinical diagnosis of the primary lesion; (2) demonstration of *Spirochæta pallida*; (3) satellite adenopathy; (4) repeated performance of the Wassermann reaction; and (5), if possible, recognition of the source of infection. Forty-one of Benario's cases satisfied these requirements, and of the remainder 13 were probable and 28 possible examples of reinfection. White in 1917 in a series of 10,500 cases of syphilis, observed ten instances of reinfection, the diagnosis of which was based on the following grounds: (1) in the first attack spirochætes were found in the chancre or in syphilitic lesions, or the blood gave a positive Wassermann reaction; (2) in the second attack the spirochætes were found in a new chancre, which appeared at a site different from that of the first chancre, the blood at the same time giving a negative Wassermann reaction. In the cases reported by Dr. Williams the diagnosis in the first instance was made both by clinical and laboratory methods; treatment by arsphenamin and mercury was carried out, and all the symptoms, clinical and serological, disappeared. Two years later exposure was followed by the development of a sore in which spirochætes were demonstrated. It is true that a tertiary lesion may exactly simulate the appearance of a chancre; it may coexist with a persistently negative Wassermann reaction, it may be contagious, although the demonstration of spirochætes is rarely possible, and it may be accompanied by a satellite adenopathy. But, as Dr. Williams remarks, all these unusual phenomena rarely occur in the same person at the same time, and such cases may with greater probability be regarded as examples of reinfection in patients who have been cured.

THE R.A.M.C. ROLL OF HONOUR.

THE Official Roll of the officers of the R.A.M.C. who laid down their lives in the Great War is now published. The total number of names given is 709, divided as follows:—

Old and New Armies.		*Territorial Force.*	
Major-Generals	1	Colonels	2
Colonels	8	Lieutenant-Colonels	13
Lieutenant-Colonels	17	Majors	16
Majors	25	Captains	77
Captains	360	Lieutenants	5
Lieutenants	185		
	596		113

The Officers' Roll, comprising over 40,000 names in all, may be purchased from His Majesty's Stationery Office through any bookseller. It would be invidious to select any of the well-known names for particular mention; all these men deserve our perpetual honour and gratitude.

ANTITUBERCULOUS VACCINATION.

WE have previously drawn attention[1] to the antituberculous vaccine prepared in Italy by Professor Martinotti, of the University of Bologna. Some new evidence came to hand in *Annali di Medicina Navale*, the organ of the Italian Naval Medical Department, at the end of last year. The Director-General, Lieutenant-General F. Rho, was so much interested in this vaccine that he gave orders it should be examined in the Naval Hospital at Spezia, and the report by Professor Medical Lieutenant-Colonel (Surgeon-Commander) Dr. L. Sestini is now published. Professor Sestini discusses the 23 cases that were treated at Spezia in 1918–19 by Martinotti's vaccine, of whom 3 were cured, 9 were improved, 4 had no benefit (3 of these died), 1 patient was found unsuitable, and 6 withdrew themselves from treatment. The evidences of cure were disappearance of fever and tubercle bacilli, as well as gain in weight. Twenty-five further cases of phthisis also treated by this vaccine, but at Modena, are mentioned, of whom, all ambulant cases, 17 were cured

[1] THE LANCET, 1920, ii., 363 and 1106.

and so remained during the two years following, 3 showed no effect, and 5 proved unsuitable. These results are distinctly encouraging, but it is to be regretted that in this, as in other investigations of new treatments for consumption, no endeavour is made to report on other cases treated at the same time, but by the more usual methods, as controls for comparison. The recovery of tuberculous patients seems to depend so much on climate, food, and the clinical acumen of the physician that, consequently, a table of recoveries of patients under a special specified treatment may really be due to the greater skill of their physician. If, however, the cases of consumption entering a hospital, or some particular physician's clinic in that hospital, are numbered consecutively, and the even numbers, for example, are all treated with this remedy, while the others receive the treatment hitherto current, all being under the care of the same physician, marked improvement in the results observed could be ascribed with some confidence to the specific treatment. The profession would become instantly curious, and would at once give trial to the method.

MEDICINE, INDUSTRY, AND RESEARCH.

THE industrial welfare movement is one of the few good things which during the war received the impetus necessary for expansion, and which has survived. Previously in this country there had been small beginnings made by a few far-seeing and enlightened employers. The Ministry of Munitions seized upon these beginnings as a base from which to commence large-scale operations; but their activities ceased with the armistice. Since then the Home Office through Welfare orders made under Sec. 7 of the Police, Factories, &c. (Miscellaneous) Act, 1916, have consolidated much of the ground won. But without doubt the life of the movement to-day lies outside official circles. An instance of this was given by the Conference held at the Mansion House by the Industrial Welfare Society which was addressed by its president, the Duke of York. This society, which is keen and active and supported by the majority of male welfare workers, approaches the subject from the social and psychological side; its point of view is expressed every month in the *Journal of Industrial Welfare*, a publication the progress of which we have been watching with interest. During the past six months this journal has greatly improved, and it may not have been mere coincidence that the improvement followed hard upon certain friendly criticisms which appeared in these columns. Practical articles dealing with such subjects as industrial fatigue, psychology, and ventilation have appeared; a key to current literature is given; and informing reviews are published. Nevertheless, we still look in vain for any record of research undertaken by welfare workers. Another instance of welfare activity is the Welfare Workers' Institute, which receives the support of women welfare workers, and also publishes a useful journal—*Welfare Work*. But here, too, the social side of the work predominates, and little attention is paid to research as the foundation of welfare as a science. The tendency to look upon welfare as an art or mystery is pronounced, and equally pronounced is the absence of any clear recognition of the importance of health in welfare.

The welfare movement as a whole must gain further power from Sec. 20 of the Mining Industry Act, 1920. Under this section a fund is gathered from a levy of one penny per ton of coal raised, which must be applied for purposes connected with the social well-being, recreation, and conditions of living of workers in or about coal-mines, and with mining education and research. A small expert committee has recently been appointed by the Secretary for Mines to allocate the fund. Research is definitely included in the subjects upon which this fund may be expended, and one member of the committee is a medical man. We may hope that in the mining industry the welfare movement will start with a scientific and medical bias. No one who watches the development of the industrial welfare movement can fail to be struck with the rapidity with which it is spreading and with the small part which the medical profession is taking in it. Yet the movement is aimed at obtaining for the worker a healthy mind in a healthy body. So far as can be judged the tendency in America is in the opposite direction. Workshop after workshop continues to appoint whole-time doctors, who select healthy workers by preliminary examinations, and keep them in health when obtained. These factory medical officers initiate in every direction welfare activities based on knowledge of what is required. In this country we have a band of medical men, certifying factory surgeons, brought intimately into touch with industry, and we naturally look to them for light and leading. The annual report of their association for 1920 is before us; it contains no word of a forward constructive policy. To judge from the report this association is mainly concerned with the inadequacy of fees allowed for carrying out the few duties entrusted to them. No reference is made to the important part which industrial medicine should be taking in the life of the community.

The world is moving fast, and under our eyes a new science, the science of health in industry, is emerging. The publications of the Industrial Fatigue Research Board have been disclosing principles underlying human activity and indicating how health may be maintained. The hasty decision to extinguish the excellent work of this Board on the plea of so-called economy has been reconsidered. Wiser counsels have prevailed. In the past the maintenance of health has never had a practical economic interest for any definite group of persons; now in industrial employment it has. For there is to-day no more paying proposition than to engage a factory medical officer who knows his work. America has been quick to make the discovery and to seize the opportunity. Unless we follow we shall fall behind in industrial competition—and in national health.

A WATER-BORNE TYPHOID FEVER EPIDEMIC.

WATER-BORNE epidemics of typhoid fever on a large scale are, fortunately, not now so frequent in this country as they were some years ago. The efforts made by local sanitary authorities to protect their water-supplies from contamination have proved eminently successful. Typical water-borne epidemics of typhoid fever are often preceded by a period of heavy rainfall or a rapid thaw, by which surface and other impurities are carried, sometimes considerable distances, to water-supplies, this mode of pollution being of a sort that in ordinary circumstances would not have been anticipated in many instances. Often the first indication that such an epidemic is impending is the occurrence of a sudden and widespread prevalence of diarrhœa of varying severity, affecting a large proportion of the population; the outbreak of typhoid fever follows in about three or four weeks' time, corresponding to the incubation period of the disease, with an added week or so to give the medical practitioner time to arrive at a diagnosis before notification. Although such water-borne epidemics, as has been said, are now of comparatively rare occurrence with us, they are not uncommon in the United States. An interesting and typical instance on a somewhat extensive scale occurred towards the end of 1920 at Salem, an industrial town of about 10,000 inhabitants in the State of Ohio (not to be confused with the famous old Massachusetts city), a report on which was published in the *Journal of the American Medical Association* for Nov. 27th last. The water-supply of this town is derived from several groups of deep wells, from which the water is pumped to conduits which convey it by gravitation to a covered service reservoir. Repeated analyses showed the supply to be pure and of good quality. There are still some 400 privies in use in and on the outskirts of Salem. For some years typhoid fever had been practically absent from the town, and not a single case had been reported in the 12 months ended August, 1920. Towards the end of that month and beginning of September, however, three cases came under observation. Very heavy and prolonged rainfall took place at the end of September and beginning of October, immediately after which a widespread prevalence of "enteritis" occurred, affect-

ing, it is said, more than half of the whole population of Salem. Some three weeks later cases of typhoid fever began to be notified in rapidly increasing numbers until Nov. 1st, when the height of the epidemic was reached. On that day 54 fresh cases were reported, the total attacks up to Nov. 20th amounting to 785, or nearly 9 per cent. of the inhabitants. After this the epidemic rapidly declined. The type of the disease was not severe, for only 12 deaths were recorded up to Nov. 20th. It was expected, however, that other fatal cases would occur, for on the last-mentioned date there were many persons still in the acute stages of the disease. The sudden and widespread occurrence of "enteritis" in the town during the early part of October cast suspicion on the water-supply as the source of the trouble. Bacteriological investigations showed that one of the conduits from a group of wells was conveying contaminated water to the service reservoir; it was therefore at once cut off from the public supply, and an emergency chlorinating outfit was installed, warning notices at the same time being issued to householders to boil all water used for domestic purposes. No doubt these measures helped to control the spread of the infection, but before they came into action the polluted water had already been drunk by many persons who afterwards developed the disease. The precise manner in which the water became polluted has not yet been stated, as at the time the report was published the investigations had not been completed. Among the other measures employed by the local health authority to control the spread of the disease was the offer of antityphoid inoculation, and this was accepted by about a fourth of the inhabitants of the town. Four emergency hospitals were established for the reception of the fever patients. The sewage of Salem is treated on intermittent sand filters, from which the effluent is discharged into the Beaver Creek, a tributary of the Ohio River. As soon as it was apparent that typhoid fever was becoming epidemic this effluent was chlorinated, with the object of protecting from infection the communities using the river water below Salem. One of the lessons to be learned from this epidemic is the necessity for constant and vigilant supervision of all sources of water-supply, no matter how pure these originally may have been.

"SACRALISATION."

A NEW word has been recently coined by French orthopædists to describe a condition which has long been known to the anatomist but has been strangely neglected by the surgeon. By "sacralisation" is understood the overlapping to a greater or less degree of the wing of the sacrum by the overgrown lateral process of the fifth lumbar vertebra. Ledouble, indeed, describes six varieties, the first two consisting of enlargement of the lateral process with overlap. The various papers contributed on this subject are ably summarised by Professor P. Mauclaire in the *Paris Médical*,[1] who points out that as a rule the condition gives rise to no pain. Curiously enough, when pain is present it appears, as a general rule, after the complete development of the pelvis during the third decade of life. Various hypotheses have been put forward to account for the pain, the favourite explanation being pressure on the lumbo-sacral nerve or on the nerves of the cauda equina. As for the cause of hypertrophy of the lateral process, this also remains undetermined, though an attractive theory has recently been put forward by Dr. E. Landoux and G. Caillods.[2] These investigators suggest that the transverse process of the last lumbar vertebra assumes the osteogenetic function of a sacral vertebrum. The practical conclusion would appear to be that in every case of backache of uncertain or unknown origin the lumbar region of the spine should be investigated under X rays. Resection of the enlarged process alone offers a satisfactory cure.

[1] La Sacralisation douloureuse de la 5e vertèbre lombaire, Paris Médical, Jan. 29th, 1921, p. 81.
[2] La Presse Médicale, Feb. 12th, 1921, p. 123.

FEES FOR LIFE ASSURANCE WORK.

FROM time to time protests reach us in regard to the remuneration offered by life assurance companies to their medical referees. We have just received the specific complaint that to be paid half a guinea for a £100 policy or less and a guinea for policies of more than this amount is illogical and unfair, because the work involved is the same in both cases. The annoyance is natural, for no professional man likes to be asked to give his best work for an insufficient fee, or to be obliged to offer less than his best because the fee is inadequate. But there is something to be said on the other side. The companies state that reports they receive from their medical referees are often perfunctory, whatever the amount of fee paid, while they may lack data necessary for a just assessment of the risk or contain statements that are contradictory and mutually destructive. Some actuaries go so far as to assert that the protection afforded by medical examination lasts only for the first three years, and that, apart from these three years, a medical report might be dispensed with altogether; and it is admitted that were it not for adverse selection no medical examination of any kind would be necessary at all, for the risks could be worked out accurately from life tables on an actuarial basis. For this and other reasons many companies are extending largely their non-medical tables with apparently satisfactory results, and there is a real danger of this procedure increasing. We say "danger" advisedly, because we feel that non-medical insurance, while dealing a severe blow at medical prestige, would not be in the best interests of the community. No doubt in the past the fees offered may have been quite inadequate, and it was a public duty to resist them. Now when it is a question of standardising the examination fee at a higher level certain facts must be borne in mind. The premiums paid in the smaller insurances allow no margin for heavy medical expenses, and a disparity, though illogical, may be unavoidable. In ordinary practice the squire's daughter and the gardener's wife may demand equal care and attention, and yet the fee cannot be the same for each. The demand for larger fees would command a greater prospect of success in the case of policies for large amounts. Again, it must be remembered that individual prognosis remains fallible whatever the skill and care devoted to the examination, and no one knows this better than those responsible for the management of life assurance companies. Referees may rightly claim that the remuneration for work done should reward them fairly for their time and trouble; they should also have a care to convince business men that medical reports are essential to the economic working of life assurance schemes.

VENTILATION OF THE HOUSE OF COMMONS.

WE do not know the exact date of the first complaint concerning the ventilation of the debating chamber and other parts of the House of Commons—the House of Lords has apparently never required similar attention—but the subject probably came up within a very few years of 1852, when the legislature took possession of its present quarters. From time to time questions have been asked, select committees appointed, reports presented, and alterations undertaken—as, for example, the substitution of fans for exhaust furnaces—but close proximity to the river and the structure of the building itself seem to have been the main obstacles to any great improvement. In 1893, for instance, we noted in our columns that in spite of "electric light and purified air" Members of the House still suffered from "lassitude." It had already been pointed out that the floor matting which covered the air inlets, or lay near them, was a source of atmospheric pollution; during 1905 Dr. Mervyn H. Gordon issued a full report in which the air of the debating chamber was shown to be too dry, and, together with the air below the inlets, demonstrably contaminated by the matting. It was hoped that the gradual disappearance of horse traffic from the London streets would improve

the bacteriological condition of the air. In 1906 it was made evident from a further report by Dr. Gordon that little was to be said against the quality of the air-supply, but Members still found it lacking in freshness. A vacuum cleaner was intoduced at about this time, and half a hundredweight of dirt thereby removed from the floor and precincts of the House each week. During the influenza epidemic of 1908 it was suggested that the disease was endemic in the debating chamber; active debate doubtless favoured the dissemination of infected air-borne material which was not efficiently removed by ventilation. In the same year a question was asked which drew in reply the statement that the admission of air otherwise than by the floor could only be effected by radical reconstruction of the chamber. Dr. Leonard Hill, who made a thorough investigation of the subject for the Select Committee appointed shortly before the war, recommended introduction of air at the top of the back of the benches and at the face of the gallery, with closure of the floor perforations; the Committee agreed to an experimental trial at a cost not to exceed £2000, and although the matter was set aside during the war a model is now under construction at the National Physical Laboratory in order that the Office of Works may test the movement of the air-currents according to Dr. Hill's plan. Sir A. Mond, First Commissioner of Works, was recently questioned concerning the proposed test, and stated in his reply that the result would be of general scientific value.

In the light of fresh complaints the ventilation of the debating chamber and its precincts still leaves something to be desired; until the temperature and humidity are properly controlled, and perhaps so long as reliance is made on quantity and velocity of air-supply alone, it will remain unsatisfactory. It is, however, doubtful if any means can be found of providing air, at once uncongenial to pathogenic organisms and altogether suited to human comfort, to a considerable number of people gathered in a large chamber.

THE SPAHLINGER SERUM.

OUR Swiss correspondent writes on March 6th: The sensational news in your daily press regarding the effects of the Spahlinger treatment in tuberculosis has occasioned some mild surprise in this country. Here the treatment is practically unknown, nor do we find its author on the list of registered medical practitioners in Geneva. So far as I have been able to ascertain, the serum has not been extensively tested in any of our Alpine sanatoriums. One wonders therefore at its fame abroad. Dr. Hector Cristiani, professor of bacteriology at, and director of, the Service d'Hygiène at Geneva University, asked by a representative of the *Journal de Genève*, stated that he had only heard of the new treatment through the daily press, Mr. Spahlinger never having made any communication to either of the learned societies of Geneva or elsewhere in Switzerland. His former communication to the Académie de Médecine and his recent communication to the Académie des Sciences, both in Paris, contained the clinical histories of certain patients under the observation of British physicians, and treated with his remedy, but they gave no indication of the method of preparation of the remedy nor of the nature of the substances injected. In such circumstances Dr. Cristiani felt it impossible to form any opinion of its value. Swiss law does not put any control on the manufacture of curative serums. Mr. Spahlinger, therefore, did not require any official authorisation to make his experiments. The Department of Public Hygiene of Geneva has had no occasion to intervene, as the preparation is not on sale in that city. Dr. Cristiani concluded by saying that it would only be possible to know something of its action when the composition and method of preparation of the Spahlinger serum were revealed. Control experiments over a period of years would then be needed. In the case of other serums their authors had lost no time before publishing details; it was then possible for others to repeat the experiments and to confirm their value. It was open to Mr. Spahlinger to do likewise.

THE COLLECTIVE VOICE OF MEDICINE.

THE old diplomacy had this to be said for it: its deliberations being held in secret it was easy for its pronouncements to be authoritative, the smooth phrases giving no hint of the struggles and compromises of which they were the net result. Doubtless medicine could speak with such an agreed though falsetto voice if its representatives felt it worth while. But no one supposes that the process would throw much light on the broad principles of health administration, which is what the public is desirous of learning from the professors of medicine. Open discussion has its own drawbacks in that the diversities may lead the unthinking to conclude that there is no underlying unity. Even the credentials of a would-be spokesman may be called in question. We dealt a fortnight ago with some aspects of this evergreen problem, and return to it to state that no organisation which has accepted membership in the Federation of Medical and Allied Societies has subsequently withdrawn from federation. The Royal Society of Medicine, the British Dental Association, the Medico-Psychological Association, the Chartered Society of Massage, the Pharmaceutical Society, amongst others, are, we learn, all glad to use this Federation for expressing a collective opinion on matters which concern them in common. The British Association of Radiology and Physiotherapy has recently applied to be federated. The Federation seems likely to make good its claim to guide public opinion without interference in the internal affairs of its constituents. Those who prefer substance to formality can hardly fail to wish it well.

THE PROMOTION OF INTERNATIONAL MEDICAL INTERCOURSE.

Dr. G. Monod's efforts to bring about closer coöperation between representative bodies of French and British medical men have not been fruitless. At a recent meeting of the Executive Committee of the Fellowship of Medicine and Post-Graduate Medical Association three different aspects of the question were considered, and the resolutions passed should at any rate clear the ground for the discussion of more definite proposals in the future. It was resolved, as a preliminary step, that the Information Bureau of the Fellowship of Medicine should be brought into closer communication with the Bureau of the Association pour le Développement des Relations Médicales (A.D.R.M.), in order that those desiring to take post-graduate courses in either country should more easily acquire detailed information as to their scope. The Committee next recorded its approval of the principle of reciprocal visits of lecturers on special subjects and its readiness to give assistance in the promotion of such occasional lectures. Lastly, the A.D.R.M. were invited to make suggestions as to how the exchange of medical literature could best be encouraged, and these we await with interest. The coöperation of great teachers should increase if such visits as that now being paid to Paris by Scottish students become more general. The 35 undergraduates of the University of Edinburgh who are at present taking a course of practical midwifery under the direction of members of the Faculty of Medicine of Paris will certainly want to keep in touch with their French teachers. It is at an early stage in medicine as in life that friendships and alliances are most easily formed, and a series of organised study excursions, as part of the curriculum of universities on both sides of the Channel, would probably do much to promote the desire for intercourse in later medical life.

THE death, at the age of 77, of John Fletcher Moulton deprives the world not only of a brilliant mathematician and scientist, but of a man of wide interests and varied achievements. Senior Wrangler and First Smith's Prizeman in 1868, a Fellow of the Royal Society in 1880, Queen's Counsel and Member of Parliament in 1885, an Appeal judge and Privy Councillor in 1906, Life Peer as Lord Moulton of Bank in 1912, he was the first chairman of the Medical Research Council and during the war Director-General of the High Explosives Committee.

THE LANGHAM TELEPHONE EXCHANGE:

MEDICAL MEN'S NEW NUMBERS.

THE new Langham Exchange, situated at the Western District Post Office, Wimpole-street, London, W. 1, was opened at 2 P.M. on March 5th, when the circuits of a large number of medical men and dentists practising in the Harley-street area were transferred from the Mayfair Exchange. Since the new numbers cannot appear for some weeks in the Telephone Directory we are giving a list, so far as can be traced, of the doctors and dentists on the new exchange with their new numbers. The direction of the London Telephone Service is in the meantime doing what can be done to mitigate inconvenience. All callers asking for the old Mayfair numbers will be connected to a special inquiry officer at the Mayfair Exchange, provided with a card index, who will advise the caller of the new number. The calling subscriber's telephonist will also be advised of the change and instructed to complete the connexion to the new Langham number.

Mayfair.	Subscriber.	Langham.
6545	Aarons, J.	1396
6691	Abraham, J. J.	1348
3619	Abrahams, Adolphe	2038
3376	Adams, J. E.	2108
1878	Adamson, H. G.	1878
5851	Addison, O. L.	1514
3086	Allen, R. W.	2161
2707	Anderson, Sir M. A.	2707
560	Armour, D. J.	2218
2407	Armstrong, R. P.	2407
5824	Armstrong, W. E. M.	1520
3993	Ash, E. L.	1949
2055	Ashdowne, W. C. G.	2055
215	Atkinson, J.	1042
6646	Bach, Edward	1373
133	Back, Ivor	2345
1044	Badgerow, G. W.	1044
1311	Ball, W. G.	1311
6073	Banting, Cecil	1467
2610	Barber, H. W.	2610
4681	Barker, F. J.	1775
821	Barlow, Sir Thomas	1242
5096	Barrett, Lady	1691
2807	Barrington - Ward, L. E.	2807
4915	Barrows, E. D.	2277
4831	Bathurst, L. W.	1752
4353	Batten, Rayner, D.	1852
1484	Bayly, H. Wansey	1484
764	Berkeley, Comyns	1219
4115	Blaaberg, C. J.	1911
4222	Blacker, G. H.	1882
361	Bolton, Chas.	1082
2908	Bolton, Elizabeth	2908
6655	Bonney, Victor	1363
1419	Bookless, J. S.	1419
3599	Bradshaw, R. G.	2055
4463	Braund, H.	1827
1889	Briscoe, J. C.	1889
1714	Bristow, W. R.	1714
2319	Brook, Francis	2319
88	Browdy, M. W.	1018
6038	Browning, S. H.	2946
3985	Bruce, W. Ironside	2337
1611	Bryan, C. W. G.	1611
3590	Bull, H. C. H.	2047
1090	Burford, G. H.	1090
4299	Burghard, F. F.	1865
3057	Burnet, E.	2167
4545	Burnford, J.	1808
1855	Burrell, L. S.	1855
3960	Buzzard, E. F.	1954
314	Canney, H. E. L.	1066
5011	Canti, R. G.	1712
1519	Cantlie, Sir J.	1519
4092	Carling, E. R.	1922
2804	Carr, A. A.	2804
5590	Castellani, Aldo	1148
441	Cathcart, G. C.	1124
1837	Chadburn, Maud M.	1837
1313	Chaldecott, J. H.	1313
1155	Chaplin, A.	1155
3509	Chapple, H.	2065
2243	Chesser, Elizabeth S.	2043
404	Chetham-Strode, R.	1099
1244		1244
4545	Chubb, Gilbert	1808
2476	Cleminson, F. J.	2476
1450	Cline, E. C.	1450
1693	Cobb, I. G.	1693
1858	Cockayne, E. A.	1858
438	Cole, P. P.	1120
1693	Colledge, Lionel	1693
84	Collier, James	1019
1174	Collins, E.	1174
4353	Colman, W. S.	1852
3842	Corbett, W. J.	1978
6180	Corner, E. M.	1456
1993		1993
4677	Cotton, T. F.	1778
4262	Cowell, E. M.	1872
285	Cox-Moore, P. G. H.	1064
2686	Craig, Sir Maurice	2686
1065	Critchett, Sir Anderson	1065
1694	Critchley, H. G.	1694
3805	Crookshank, F. G.	1985
466	Cruise, R. R.	1139
1887	Cumberbatch, A. E.	1887
5620	Cumberbatch, E. P.	1562
3306	Cunning, J.	2123
2342	Cunningham, J. F.	2342
1439	Curtis, G. H.	1439
823	Curtis, H.	1243
2697	Dally, J. F. Halls	2697
1068	Daniel, P. L.	1068
2935	Davies, Arthur	2935
160	Davies, Trevor B.	1028
6749	Davies-Colley, R.	1341
642	Davis, E. D. D.	1178
4423	Dawson, Lord	1838
5096	Day, J. Roberson	1691
2243	Day, Kendrew J.	2043
953	Denne, F. Vincent	2670
2537	De Vine, G. M.	2537
4288	Dickson, W. E. Carnegie	1867
4681	Doble, F. C.	1775
1917	Dodd, Stanley	1917
2011	Drew, D.	2023
1892	Dundas-Grant, Sir J.	1892
1036	Eccles, W. McAdam	1036
2868	Eckenstein, K. E.	2940
557	Eddowes, A.	1157
4514	Elmslie, R. C.	2202
1611	Elphick, G.	1611
3888	Fairbairn, J. S.	1967
391	Fairbank, H. A. T.	1093
342	Farmer, Sir F. M.	1078
4764	Feldman, W. M.	1766
1083	Fenton, W. J.	1083
1287	Fenwick, B.	1287
240	Fenwick, W. S.	2468
4869	Finzi, N. S.	1743
1482	Firth, A. C. D.	1482
1122	Fisher, J. H.	1122
1858	Flett, Alexander	1858
326	Forsyth, D.	1076
2244	Forsyth, H. A.	2240
837	Forsyth, J. A. C.	1250
4443	Gaster, A.	1831
645	General Medical Council	2500
3577	Gibbes, C. C.	2051
1495	Gillespie, Edward	1495
6330	Gilliatt, W.	1436
5019	Gillies, H. D.	1711
993	Giordani, D.	1278
2291	Goodall, J. S.	2291
598	Gould, E. L. P.	1170
5011	Gow, A. E.	1712
52	Graham, C. I.	1013
5011	Graham, G.	1712
4490/1	Gray, H. T.	1814/5
953	Greeves, R. A.	2670
1645	Griffiths, H. E.	1645
1852	Gunn, A. R.	1852
1497	Guthrie, A. C.	1497
1035	Hadfield, C. F.	1035
1208	Hadley, W. J.	1208
1200	Haire, Norman	1200
2068	Halliburton, W. D.	2068
1632	Hamill, P.	1632
2098	Hamilton-Pearson, E. A.	2098
1237	Handley, W. Sampson	1237
1032	Harbord, E. A.	1032
2342	Hare, Dorothy C.	2342
2643	Harley, Vaughan	2643
1015	Harman, N. Bishop	1015
2071	Harmer, Douglas	2071
1038	Harris, P. T.	1038
1159	Harris, W.	1159
1028	Hart, Bernard	1028
1520	Heald, C. B.	1520
1063	Heath, C. J.	1063
2026	Hedley, J. P.	2026
2025	Hernaman-Johnson, F.	2025
1909	Herring, H. T.	1909
1925	Hett, G. Seccombe	1925
2098	Hicks, Braxton	2098
2935	Hollander, B.	2935
1794	Holmes, Gordon	1794
2319	Holyoak, W. L.	2319
1644	Hope, C. W. M.	1644
2200	Horder, Sir T. J.	2200
1384	Horsford, Cyril	1384
1520	Howell, B. W.	1520
2128	Howell, C. M. H.	2128
2029	Hughes, E. C.	2029
1731	Hurst, A. F.	1731
1196	Hutchinson, J.	1196
1936	Hutchison, R.	1936
2993	Hyslop, T. B.	2993
2246	Ibbotson, W. T.	2246
1248	James, W. W.	1248
1056	Jenkins, G. J.	1056
1200	Jenson, E. T.	1200
2618	Jewell, W. H.	2618
1009	Jewesbury, R. C.	1009
1520	Jobson, T. B.	1520
1062	Johnson, Raymond	1062
1080	Joly, J. S.	1080
1177	Jones, Ernest	1177
1660	Jones, Sir Robert	1660
1626	Jordan, A. C.	1626
1626	Jordan, Rose	1626
1465	Kellock, T. H.	1465
1501	Kendall, P. E.	1501
1234	Kidd, F.	1234
1691	King, C. Alice	1691
1230	King, D. B.	1230
2913	Kinsey-Taylor, A. E.	2913
1653	Knox, R.	1653
2502	Knox-Shaw, C. T.	2502
1434	Laboratory of Pathology & Public Health	1434
1670	Lake, R.	1744
1413	Lakin, C. E.	5363
1232	Lawson, Sir Arnold	4170
2299	Layton, O. F.	3987
1520	Leahy, M. P.	5759
2366	Leathem, A. N.	2537
2047	Lees, Kenneth	1310
1628	Legg, T. P.	4764
1098	Leslie, R. Murray	4170
1803	Levick, G. Murray	3560
2233	Levy, A.	5381
1163	Lewis, Emily C.	5061
1643	Lister, T. D.	817
2222	Little, E. Graham	1126
1236	Locke, W. Lindsay	3447
1445	Lockyer, C. H. J.	6833
1874	Longinotto, M. J.	
1786	Low, V. W.	7150
1750	Luker, S. Gordon	3602
1481	Lyle, J. D.	3996
1435	Lyon-Smith, H. L.	2610
1570	McCall, Alexander	2477
1807	McCann, F. J.	3407
1075	McClure, James	673
1866	McClure, J. Campbell	215
1795	McCrea, H. Moreland	246
1768	McDonagh, J. E. R.	1480
2038	MacDonald, Greville	2537
1388	MacDonald, Keith	5217
1446	McHoul, J.	2187
1787	McKenzie, Dan	2294
2357	Maclehose, N. M.	1658
1121	MacLeod, J. M. H.	5334
1762	Macnamara, E. D.	3921
2043	Macnaughton-Jones, M.	1090
		6798
1864	MacNish, D.	2826
1038	Mansbridge, J.	
2232	Markus, C.	
1167	Marriage, H. J.	3299
2207	Maybury, B. C.	
1043	Med. Soc. of London	
1482	Melville, Stanley	599
2999	Metcalfe, J.	1888
4994	Miles, W. E.	1045
2749	Miller, H. Crichton	1720
95	Miller, R. H.	2749
4386	Milne, Robt., jun.	1020
1855	Mills, C. H.	1749
2334	Mitchell, E. J. D.	1855
2697	Moir, Byres	2334
4883	Moore, H. J.	1740
4362	Moore, R. F.	1848
4680	Morris, Sir Malcolm	1776
1769	Morrow, D.	1769
2754	Morton, R. A.	2237
3380	Mowat, H.	2107
2697	Myers, B.	2697
3868	Nabarro, D. N.	2236
4543	National Hospital for Diseases of the Heart	1810
6639	Newmarch, J. H.	1378
4054	Nicoll, Maurice	2338
3380	Nicoll, P. J. S.	2107
3815	O'Donovan, W. J.	1982
6239	Oliver, James	1447
4016	Oliver, M. W. B.	1939
5191	Openshaw, T. H.	1675
2610	Ormond, A. W.	2610
4222	Owen, S. A.	1882
7183	Page, C. M.	1284
4556	Palmer, F. S.	1807
4764	Palmer, J. I.	1766
213	Palmer, P. H. H.	1038
4545	Parkinson, J.	1808
31	Paterson, H. J.	1006
5031	Paton, L. J.	1708
3781	Patterson, N.	1989
4048	Peacock, W. E.	1931
454	Pegler, Hemington	1128
6073	Perkins, J. J.	1467
3550	Pernet, G.	2060
614	Phear, A. G.	1031
3760	Phillips, G. R.	1990
6503	Phillips, H. R.	1399
2991	Pinchin, A. J. S.	2991
3651	Pisani, L. J.	2030
3615	Porteous, A. B.	2040
4964	Potter, B. E.	1724
2419	Potter, J. C.	2419
2755	Powell, W. Wyndham	2755
776	Power, Sir D'Arcy	1226
1932	Poynton, F. J.	1932
4370	Pritchard, G. E. C.	1846
854	Pritchard, H.	2211
1640	Quartley, S. W.	1173
454	Raw, Nathan	1128
5851	Rea, R. Lindsay	1514
4803	Redding, J. M.	1758
285	Relph, H. J.	1064
4262	Riggall, R. M.	1872
1480	Ripman, C. H.	1480
1611	Rivett, L. C.	1611
4660	Riviere, C.	1782
3590	Roberts, C. H.	2047
1744	Robertson, R. C.	1744
5363	Robinson, R. H. O. B.	1618
4170	Roll, G. W.	2412
3987	Rose, F. A.	2283
5759	Roth, P. B.	1526
2537	Rouse, R. E.	2537
1310	Rouw, R. W.	1310
4764	Roxburgh, A. C.	1766
4170	Russell, A. E.	2412
3560	Russell, H. G. B.	2186
5381	Ryall, Sir Charles	1612
5061		2708
817	Ryland, A.	1239
1126	Sachs, A. L.	1126
3447	Sainsbury, H.	2074
6833	St. Aubyn-Farrer, Claude	1330
7150	Santi, P. R. W. de	1256
3602	Sargent, Percy	2044
3996	Saunders, P. W.	1948
2610	Savill, Agnes F.	2610
2477	Schofield, A. T.	2477
3407	Scott, J. MacNaught	2098
673	Sharkey, Sir J. S.	1195
215	Sharpe, Salisbury W.	1042
246	Shaw, H. Batty	2460
1480	Shaw, L. E.	1480
2537	Shenton, E. W. H.	2537
5217	Sheppard, Amy	1638
2187	Sherren, James	2294
2294		2295
1658	Shirley, H. J.	1658
5334	Simpson, A. Malcolm	1634
3921	Simpson, W. J. R.	1962
1090	Sinclair, A. M. Ross	1090
6798	Snowden, E. N.	1332
2826	Society for the Prevention of Venereal Disease	2826
3299	Society of Tropical Medicine and Hygiene	2127
599	Spencer, H. R.	1171
1888	Spicer, F.	1888

Mayfair.	Subscriber.	Langham.
3880	Stevens, T. G.	1972
4124	Steward, F. J.	1908
1623	Stewart, G. B.	1623
321	Stewart, K. T.	1073
241	Still, G. F.	1050
3560	Stone, D. M.	2186
5737	Stott, Arnold W.	1534
2834	Stowers, J. H.	2834
4795	Stuart-Low, William	1759
465	Swanton, J. H.	1138
993	Tallarico, G.	1278
630	Thompson, Theodore	1176
1275	Thomson, H. C.	1275
103	Thomson, Sir StClair	1022
63	Thorne, L. Thorne	1015
5412	Timberg, R. T.	1595
3960	Trewby, J. F.	2311
5633	Trotter, Wilfred	1560
4457	Turner, P.	1828
4047	Turner, William	1933
5322	Turney, H. G.	1637
4036	Tweedy, Sir J.	1937
1619	Viner, Geoffrey	1619
441	Wainwright, Lennox	1124
2908	Walker, Jane	2908
70	Walker, J. W. Thomson	1016
3560	Walker, Kenneth	2186
1554/5	Wall, Cecil	1554/5
2084	Wallace, Abraham	2340
1371	Wallace, Sir C.	1371
3104	Walsham, Hugh	2157
1229	Walton, A. J.	1229
598	Ward, G. E. S.	1170
3560	Ward, R. O.	2186
6925	Warren, Richard	1316
1279	Waterhouse, Sir H. F.	1279
4948	Watson, Sir Gordon	2343
4370	Watts, J. E. Price	1846
4532	Waugh, G. E.	1812
598	Webb, C. H. S.	1170
5412	Webb-Johnson, Cecil	1595
3304	Weber, F. Parkes	2126
3590	Wells, A. P. L.	2047
2130	Westman, C.	2130
1899	White, Clifford	1899
2124	White, W. Henry	2124
586	Wilks, Elizabeth	1163
1058	Williams, Sir Dawson	1058
4188	Williams, E. U.	1895
5275	Williams, G. E. O.	1656
4455	Williamson, Herbert	2289
3606	Wilson, Albert	2360
5549	Wilson, Harold	2228
5504	Wilson, Justina	1576
392	Woakes, Claud	1094
4262	Woods, H. Fergie	1872
6925	Woods, J. C.	1316
2033	Woodwark, A. S.	2033
160	Woolf, A. E. M.	1028
5315	Worrall, E. S.	1642
4771	Worth, C. A.	1763
2165	Wylie, A.	2165
5959	Yearsley, P. Macleod	1487
4054	Young, J. C.	2338
6073	Young, R. A.	1467
1855	Young, W. A.	1855

The list, despite all the care taken, may be incomplete, and we should like to receive notice of any corrections that may be necessary.

CONTROL OF VENEREAL DISEASE.

Venereal Disease Clinics.

WHEN the atmosphere of discussion enveloping the expediency or possibility of prophylaxis of venereal diseases becomes close and sultry, it is well to remember the development of widely spread and well-organised efforts towards the reduction of these diseases. If we consider that in this country until a few years ago not a single authorised centre was in existence, it becomes obvious that much has already been achieved in a comparatively short period. The difficulties encountered were many and in some instances formidable, and the way they have been surmounted in the past gives hope that, if only all parties will work together, enormous strides will be made in the eradication of venereal diseases in the future. From a study of the list of treatment centres approved by the Ministry of Health under Article III. of the Public Health (Venereal Diseases) Regulations, 1916, we note that there are now in existence 176 recognised centres, at nearly all of which treatment is administered to both men and women. Taking into regard the difficulties which still exist, criticism would be out of place, but we offer certain suggestions in a spirit of hopeful commentary. We note that in 31 clinics there are no evening sessions for men. This is a serious omission, since the industrial classes are usually prevented by economic reasons from attending during the earlier part of the day. It is true that in certain instances clinics are open on Saturday afternoons, but this does not satisfy the need. Every clinic should be open at least three times a week, and at hours when the majority of patients can reasonably expect to attend. Moreover, the provision of irrigation treatment between the actual sessions of the clinics is most important; there are still very many clinics at which this convenience is not afforded. We may hope that the next year will see a great improvement in this respect, as well as increased opportunities for female patients to obtain this valuable adjuvant treatment.

Marriage of Syphilitic Women.

We have already commented [1] on a recent discussion at a special meeting of the Société Française de Dermatologie et de Syphiligraphie on the marriage of syphilitic women. As a preliminary the following two recommendations were made: (1) Unification of methods of treatment; (2) unification and standardisation of technique in the performance of the Bordet-Wassermann reaction. Dr. Louis Bory, in a communication to the *Progrès Médical* of Jan. 15th, divides cases for consideration into two groups: First, those who present themselves for treatment in the early primary stage before the appearance of a positive blood reaction; and second, those who start treatment subsequent to the development of a positive W.R. As a suitable course of treatment for the first-named group he advocates the following: A preliminary course of an arsphenamine preparation with a total dosage of 3·5 g. for medicaments of the 606 type, and of 4·5 g. for those of the 914 type, the course lasting two months—a month's rest—and a W.R.; a second course "de sécurité" identical with the previous course lasting two months, another month's rest, and a W.R. Following this an additional treatment with mercury lasting six months. Mercury is given in weekly injections of grey oil or of calomel in courses of two months with a month's interval between them. At the end of this mercurial treatment a lumbar puncture and examination of cerebro-spinal fluid are performed. The year of treatment having terminated, a year of observation is carried out with periodic examinations of the blood, and a second lumbar puncture. If all these examinations prove negative the patient is allowed to marry at the end of this second year. For those who have not come under treatment until a positive W.R. has developed a second year's course is prescribed. If at the end of these two years the blood reactions and examinations of the cerebro-spinal fluid prove negative a two years' period of observation is recommended. During this time regular examinations are performed and a provocative W.R. done at the end of each year. A lumbar puncture terminates the period of observation. If this is negative marriage is permitted. In the opinion of Dr. Bory the same tests should be used for the male as for the female.

Return of the Far East Commission.

The Commission appointed by the National Council for Combating Venereal Diseases and sent out to the Far Eastern ports under the ægis of the Colonial Office has completed its itinerary, and will arrive in England on March 14th.

Conference of Public Health Authorities.

A conference of public health authorities took place at 5, Cadogan-gardens, London, on March 1st, Lord Askwith presiding, to consider the prevention of venereal disease. Dr. A. Mearns Fraser proposed:—

That, in view of the terrible effects of venereal diseases on the health of the nation, and especially because of their effects upon women and children, there is urgent need for health authorities to institute active measures to protect the inhabitants of their districts against these diseases. Of these measures by far the most important is education of the public as to the dangers of venereal diseases, as to the manner in which they are spread, and above all, education in the methods of immediate self-disinfection, by which venereal diseases can be largely prevented.

Dr. Fraser said that the Society for the Prevention of Venereal Disease was anxious to induce local authorities to make known the methods of self-disinfection to the public, and he detailed the action already taken in this direction by the Portsmouth Health Committee. Dr. Charles Saunders, in seconding the resolution, said that among the 300,000 inhabitants of West Ham there were more than 1000 new known cases of venereal disease every year.

Dr. E. W. Hope, Dr. W. A. Bond, Dr. J. Holroyde, and other medical officers of health and prominent municipal officers supported the resolution, which was then put to the meeting and carried unanimously with the following addendum:—

Resolved further that this resolution and opinion be forwarded to health authorities throughout the United Kingdom, with the request that they take the subject at once into consideration.

Sociological Teaching to Medical Students.

On Tuesday, March 1st, the first of a course of lectures on gonorrhœa was delivered at the London Hospital by Mr. Hugh Lett, director of the Gonorrhœal Clinic, who gave an admirable résumé of the subject of

[1] THE LANCET, Feb. 26th, p. 447.

venereal disease as viewed from the sociological standpoint. He pointed out how necessary it is for medical practitioners to evince such an interest as will enable them to reply with authority and confidence to the inquiries to which, as medical men, they will certainly be subjected. Further, he showed how important it is that medical men should possess such a knowledge, in order that they may be able not only to offer information and guidance but also at times to restrain well-meaning but ill-considered attempts to reduce venereal disease. Mr. Lett drew a comparison between the prurient and false modesty adopted in the mid-Victorian era and the more wholesome candour which marks the present day, epitomising the activities of the Royal Commission on Venereal Diseases, the National Council for Combating Venereal Diseases, and the Society for the Prevention of Venereal Disease. He explained and dealt in a judicial manner with the controversy concerning immediate self-disinfection and early preventive treatment, ending with a consideration of the difficult subject of notification. Such a lecture, we believe, is something of a novelty in a teaching school, and the example of the London Hospital might well be followed in bringing before medical students and practitioners the necessity for developing a sociological interest in these diseases. If once the sympathy and coöperation of the medical profession as a whole were enlisted it would be a far easier task to influence popular opinion.

LUNACY IN EGYPT.

THE Twenty-fifth Annual Report on the Government Hospital for the Insane at Abbasayi and the Eighth Annual Report on the Asylum at Khanka are, as usual, full of interest, and give evidence of the steady progress which has been made in Egypt in the treatment of the insane, notwithstanding the very trying experiences of the last few years. The period covered by the reports coincides with the financial year 1919–20. The number of beds on the establishment is 1581—i.e., 1181 at Abbasayi, 400 at Khanka. The admissions, exclusive of transfers between the asylums, reached a total of 919. Besides cases admitted to the two asylums, many patients were admitted to the local hospitals of the Department of Public Health. We must once again point out the importance of having other asylums scattered about in different parts of Egypt.

The total number of cases of insanity brought under official cognisance during the year is found to be 1098, which, compared with the 1281 in 1918, shows some diminution. 635 cases were discharged, of whom 175 had recovered, and 26 were found not to be insane; 430 cases were handed over to their relatives—while still insane—in most instances because accommodation was needed for new and more acute cases. The reduction of 159 in the admissions did not result in any relief of the pressure for room, owing to a reduction of 200 in the number of beds. The old troubles have arisen from want of accommodation, there being on the one hand a considerable amount of crowding, and on the other the necessity to discharge many patients who are only, apparently, convalescent. Discharge of convalescent patients to their old and in many cases unhealthy surroundings has as usual led to the patients being later returned under the head of criminals. Again, it has to be noticed that there is no real criminal asylum, and that the majority of the people who are reported to be criminally insane are sent to Abbasayi.

Diet and Mental Disease.

The death-rate among the insane patients has diminished from 21 per cent. in 1918 to 11·9 per cent. in 1919; calculated on the total treated, it has dropped from 13·4 per cent. to 8·2 per cent. The reduction in the deaths affected nearly all causes given in Table 10, except general paralysis. The greatest reductions were as follows:—

Pellagra	66
Dysentery and diarrhœa	25
Exhaustion from brain disease and epilepsy	28
Lung and heart disease and tuberculosis	33
Influenza	30

The great reduction in the deaths from pellagra and from other diseases is evidently due to some common cause, and this cause seems to be the improvement in the diet proposed in last year's report, and put into force on May 1st, 1919—namely, an increase of 45 g. of meat and 50 g. of milk daily in the diet of each patient. The importance of this fact is manifest, in view of the doubt recently thrown upon the relationship existing between pellagra and diet, certain investigations having pointed to infection and dysenteric troubles as ætiological factors. But the observations of Dr. J. Warnock and Dr. H. W. Dudgeon confirm the impression that pellagra is chiefly associated with defective diet. These should be read in connexion with the special report on pellagra among the Turkish prisoners of war, published by the British War Office, in which the conclusion was reached that lack of sufficient biological value of protein stands in ætiological relationship to pellagra, certainly as an exciting factor, and possibly as a determining factor, while the low biological value of the protein of maize was suggested as the reason for the frequency of pellagra among maize consumers.

The Causes of Insanity.

As usual, pellagra appears as the chief cause of mental disorder in Egypt—or, at all events, as being an associated cause in the production of insanity—and when the different groups are analysed it is found to be equally represented in each. Thus, of the forms of insanity of 52 male and 5 female accused persons—i.e., those accused of crimes—10 of the 52 owed their insanity to pellagra. Table 5 gives the forms of insanity admitted, and there again it is noteworthy that hashish and alcohol play an important part, although that part is small in comparison with pellagra. Epileptic insanity is also frequent. General paralysis of the insane occurred in a considerable number of patients, and, as we have pointed out before, a very large number of female patients—in fact, a much larger proportion of female to male patients—is met with in Egypt than in England. As usual, the large proportion of general paralytics is furnished by the cities, such as Cairo and Alexandria; whereas pellagra occurs more commonly in the country districts. Cairo provides most of the cases of insanity due to hashish. Table 9 attempts to give the causes of insanity, and suggests the relationship of heredity to the production of mental disorder; difficult as it is in England to obtain any trustworthy history where heredity is concerned, that difficulty is greatly increased in Egypt among illiterates. Syphilis is given as a very definite cause, occurring both in men and women, not only producing general paralysis, but also other forms of disorder.

A striking fact as seen from the tables is the length of residence in hospital of patients who recovered, a considerable number being discharged who had been in asylums for seven years and upwards. Seclusion had to be resorted to in a fair number of cases, depending to a great extent upon the crowded condition of the asylum. No mechanical restraint was employed during the year, and hypnotics were used to a limited extent. Five patients sustained fractures from falls or struggles with other patients; one patient sustained a fracture of the humerus, another a fracture of the clavicle. None of the fractures was fatal. Post-mortem examinations were made in only 16 instances. The staff, both English and Egyptian medical officers, has been increased, and has been maintained in its efficiency.

The Khanka Report.

Turning to Dr. Dudgeon's report at Khanka, it appears that for some considerable part of the year he was taking the place of Dr. Warnock, who was in Europe. Dr. Dudgeon provides interesting tables, showing the rate of admissions, the percentage of pellagra admissions, and the death totals; graphic schemes are given showing these facts in relationship to the Khanka institution. Steady progress is recorded in regard to the farms and the supply of water, and the planting of trees is being carried on satisfactorily. At Khanka are received the more quiet patients, and no women—a rather special class, from whom more work

can reasonably be expected than from patients elsewhere. Careful examination was made of stools in reference to dysentery and diarrhœa. The results bear out the findings in last year's report as regards the presence of intestinal worms. Dr. Dudgeon has succeeded, during the past year, in maintaining the standard of no seclusion or restraint; he has also been able to reduce the administration of sedatives to a very satisfactory point.

The reports, considered together, make clear the facts that lunacy in Egypt is being satisfactorily treated, and that, with time, the further development of lunacy legislation, and the establishment of local asylums, with the separation of criminal lunatics, will have a very beneficial effect. The reports themselves are models of care and accuracy, both from the medical and the economical point of view.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

District Medical Officers for Scotland.

THE Scottish Board of Health announce the appointment of the following district medical officers:—Senior district medical officers: Western District (headquarters, Glasgow), Dr. R. Buchanan; South Eastern District (headquarters, Edinburgh), Dr. A. M. McIntosh, C.M.G. Junior district medical officers: South Western District (headquarters, Glasgow), Dr. John Gilmour; Northern District (headquarters, Aberdeen), Dr. John Jeffrey; Eastern District (headquarters, Dundee), Dr. J. Murray Young. These officers will act as medical referees in cases referred to them on questions of incapacity of insured persons for work, and as consultants in questions of diagnosis and treatment. They also have important administrative duties in connexion with the Insurance Medical Service and other work of the Scottish Board of Health.

Annual Dinner of the Royal Medical Society, Edinburgh.

This, the first post-bellum revival of an important Edinburgh medical function, was held on Feb. 22nd, in the hall of the Royal College of Surgeons of Edinburgh, by the kind courtesy of the Council. The chair was occupied by Dr. J. Davidson, senior president of the society, who welcomed the guests. The guest of the evening was Professor Robert Muir, M.D., F.R.C.P., F.R.S., of Glasgow University. After the loyal toasts had been drunk, the Lord Provost of Edinburgh proposed the toast of "The Imperial Forces"; Admiral Sir Herbert Heath replied for the Navy, and Lieutenant-General Sir Francis Davies for the Army. The chairman, in proposing the toast of "The Guest," said that Professor Muir was an old member of the society. Twenty years ago he went to Glasgow, where he gathered round him a body of workers, and gave to Glasgow her reputation as a school of pathological research. Professor Muir, in reply, said that such gatherings tended to a spirit of generosity and exaggeration; they had honoured him beyond his merits, and ever afterwards when he looked back there would be nothing he would prize more highly than the night on which he had been the guest of the Royal Medical Society. In proposing "The Royal Medical Society," he said, he had the difficult task of making two speeches in the one evening. He referred to the early history of the society, to its formal institution in 1737, its activities, and the fact that at an early period the society came to regard itself as an essential part of the medical school. In spite of disputes and quarrels from time to time there was no doubt that the Medical Society had very great influence in the growth and development of enthusiasm for the good of the school, and in 1778 the society was incorporated by Royal Charter. Professor Muir then referred to his own connexion with the society and wished all success to the younger generation in their conduct of its affairs. He expressed the wish that the spirit and the motive which existed from the opening of the society might still prevail, and that honest inquiry, free criticism, and mutual help would always dominate in all that the society did. Dr. J. Lewis Owen, in reply, said that in common with other great bodies the society had passed through its times of adversity, but that it still continued to carry on the good work. Dr. J. M. Watt proposed the toast of "The University and Royal Colleges," and spoke of the great numbers of students who came to the Scottish schools of medicine from overseas. Principal Sir Alfred Ewing, replying for the University, said that the association of the University and the Royal Colleges was one of close and friendly partnership, and referred to the scheme for the commemoration of Lister and also to the scheme for raising funds for the University. Sir Robert Philip, replying for the Royal College of Physicians of Edinburgh, referred to the early foundation of the latter and to the close association between it and the Royal Medical Society. Dr. George MacKay, replying for the Royal College of Surgeons, Edinburgh, took the opportunity of expressing the pleasure which it gave his College to provide its hall for such a banquet. Dr. Freeland Fergus replied for the Royal Faculty of Physicians and Surgeons, Glasgow, and said that Edinburgh had once taken a good man from Glasgow in the person of William Cullen, but that Glasgow had now made up for this in its possession of Professor Muir. Dr. J. F. C. Haslam, in proposing the toast of the "Sister Professions," spoke of the high missions in this life which the Church, the law, and medicine, each in its own sphere, must keep before them. The Dean of the Thistle replied for the Church and the Solicitor-General for the law. Mr. Miles then proposed the toast of "The Chair," and the banquet concluded with "Floreat Res Medica."

University of Aberdeen War Memorial.

The University of Aberdeen is preparing a record of the services of its members during the war, and memorials to those of them who fell in action or went down with their ships, or died of wounds or disease. The record contains about 3000 names of graduates, alumni and members of the staffs, with particulars of the service of each, and of the distinctions gained. It is to be preceded by brief biographies with portraits of the 337 who laid down their lives for their country. A large part of the volume has gone to the press and the rest is rapidly nearing completion. The memorials which have been planned consist of a stained-glass window in the ante-chapel of the University Chapel at King's College with oak panels on the walls bearing the 337 names; of another window in the chancel; and of a memorial porch in Marischal College. The total cost of these memorials has been estimated at between £9000 and £10,000. Up to this time £4700 have been subscribed, but further subscriptions are necessary and may be sent to the principal or to the honorary treasurer, Mr. D. M. M. Milligan, 12, Dee-street, Aberdeen.

March 7th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Further Researches on Encephalitis Lethargica.

AT a recent meeting of the Société de Biologie MM. C. Levaditi and P. Harvier have given the results of further experiments carried out on animals, with special reference to the inoculation of encephalitis lethargica to rabbits. Some of their findings may have a direct application to the prophylaxis of encephalitis lethargica, since they have observed that the virus of the disease remains active for a long period in water and in milk.

Medical Aspects of Conscription.

The Minister of War in a letter to the members of the Académie de Médecine has set forth the following three questions: (1) At what age between the ages of 19 and 21 should conscription most suitably take place from a medical point of view? (2) What is the best season for men to join the colours? (3) Is resistance to fatigue and diseases diminished in men who have

been rationed during the war? A committee was appointed to consider the three answers and Mr. Léon Bernard has recently submitted its report. The committee recommends the age of 21 as the most suitable for incorporation of men into the army, and has decided that the end of April is the best time of the year for calling them up. On the last point the conclusion reached was that the resistance of men who had been rationed during the war was diminished. In the course of the debate on the report Mr. H. Vincent gave statistics referring to contagious diseases (scarlet fever, measles, mumps, diphtheria, cerebro-spinal fever, typhoid fever, and paratyphoid) which occurred in the French army in recent years, showing that the morbidity was 5·78 per 1000 amongst men of 20 years of age and 5·25 per 1000 amongst men aged 21; these figures indicated that resistance was about the same in both groups. Other members were in favour of the age of 20 for the enrolment of conscripts providing the recruits were properly selected and properly cared for. The answer to the Minister dealt first with recommendations concerning the welfare of young recruits, more especially with regard to their training, clothing, feeding, and to hygienic conditions in barracks. The members of the Académie de Médecine finally declared that in their opinion men could join the army at 20 if these recommendations were carried out. The matter is of some importance; Mr. G. H. Lemoine points out in an article in the *Revue d'Hygiène* that in the event of mobilisation the contingent of the French army is increased by 200,000 men when the age of conscription is 20 instead of 21.

The Société de Neurologie.

Mr. Henry Meige, the general secretary of the Société de Neurologie, has announced at a recent meeting that the Réunion Neurologique Annuelle de la Société de Neurologie de Paris will be held in Paris on June 3rd and 4th. The subject for discussion will be the Syndrome of Parkinson's Disease, to be opened by Mr. A. Souques.

International Congress of Medical History.

An International Congress of Medical History will be held at the Faculté de Médecine de Paris from July 1st to 5th. Professor E. Jeanselme and Professor P. Ménétrier will preside over the Congress, which will consist of meetings, conferences, and visits to hospitals and museums. A museum of medical history will be inaugurated. The committee of the Congress invites any body in possession of historical medical curiosities (instruments, medals, engravings, pictures, sculptures, books, &c.) to lend such articles for a temporary retrospective exhibition. Further information can be obtained from Mr. Laignel Lavastine, Secrétaire-Général du IIe Congrès International d'Histoire de la Médecine, 12 bis, Place de Laborde, Paris (VIIIe).

Modification of the Internat Competition.

It has been finally decided to modify the form of the "Concours de l'Internat" on the lines indicated in my last letter. By order of Mr. Louis Mourier, Directeur de l'Assistance Publique, the modification will be applied to this year's competition.

March 5th.

ROUMANIA AND HUNGARY.

(FROM OUR OWN CORRESPONDENT.[1])

Cholera Prophylaxis in Bessarabia.

THE high degree of efficiency which characterises the work of the Medical Department of the Roumanian Army has been well illustrated in Bessarabia, where in the fiscal year of 1920 there was not a case of cholera among the Roumanian troops, although the disease was common amongst the natives and in the neighbouring Russian provinces. In numerous towns adjacent to military posts the disease was epidemic at some period during the year. The achievement of the Medical Department is said by the Surgeon-General in his annual report to be due to the thoroughness and effectiveness of the sanitary measures employed. The Roumanian soldiers have been thoroughly trained to abstain from eating uncooked native vegetables, and from drinking any but sterilised water. In the old Bessarabian (late Russian) soldiery there were only 9 cases with 7 deaths; these figures testify to the influence of the army system of sanitation, even with people accustomed for centuries to conditions of living that foster such diseases as cholera.

Hostels for University Students in Bucharest.

The question of hostels and residences for students has occupied the attention of the educational authorities in Bucharest for a considerable time. The existing conditions are anything but satisfactory. Students are frequently unable to get convenient apartments, and during the last two years the position has become more and more difficult. Even in the suburbs exorbitant rents are charged. Financial and other considerations have hindered the provision of hostel accommodation. The financial committee of the University wishes to establish a number of small hostels, each to accommodate some 50 students. This scheme would enable them to erect the hostels in different districts, possibly outside the city area, so that students might have the benefits of country residence with easy access to their training centres. So far, nothing definite has been done in the matter of securing sites beyond the inspection of certain pieces of ground, but the committee anticipates making an early start with whatever scheme may be decided upon. Meantime, several houses have been taken for temporary residences, and the committee hopes soon to be able to have accommodation for 200 students. These hostels will probably be opened in time for next session.

Epidemic of Sore-Throat in Kisenew.

An extensive epidemic of sore-throat has been prevalent in Kisenew, a large industrial and commercial centre in Bessarabia, during December, 1920, and January, 1921, and in many cases entire households have been attacked. The sore-throat was generally accompanied with painful and sometimes suppurative tonsillitis, and with enlargement of the glands of the neck. Attacks were often ushered in with rigor, and cases are recorded with a temperature of 39·8 C. The attacks were generally followed by marked depression and weakness lasting for several weeks. Streptococci and some staphylococci were found, but no diphtheria bacilli. The great majority of the cases occurred in outlying parts of the town inhabited by the poorer classes. Antistreptococcic serum did not seem to be of much use, and it was reported that in only one or two instances did vaccine made from the actual organisms appear to relieve symptoms. Only a few cases of acute rheumatism are known to have followed the attacks; the best results seem to have been given by aspirin, together with local antiseptics.

Pasteurisation and Grading of Milk in Budapest.

The department of health of the city council of Budapest at its meeting on Jan. 31st adopted resolutions which provide that all milk and cream offered for sale in the city, except that used for manufacturing or cooking purposes, must be of the grade technically recognised by the Board of Health as certified or guaranteed milk, or must be pasteurised under the conditions prescribed by the Board, following the system long employed in America. Grade A, for infants and children, is to be sold in bottles only. (This includes certified milk, guaranteed milk, or milk pasteurised under special regulations.) Grade B, milk safe for adults, to be sold in bottles or drawn from containers, not dipped. (This includes Grade A and pasteurised milk produced under the regulations of the departments.) Grade C, milk suitable for cooking and baking purposes, to be sold from bottles or from cans. (This includes all milk complying with the regulations made for A and B.) No one should use milk inferior to Grade A for feeding

[1] Our correspondent lives in Transylvania, which was in Austro-Hungary and is now in Roumania. Hence his familiarity both with Budapest and Bucharest which has misled some of our readers into thinking that we were imperfectly informed of the present geographical boundaries of Central Europe.—ED. L.

an infant or child. Every person purchasing milk for drinking purposes is entitled to receive milk not inferior to Grade B. The efforts of the department of health in the supervision of milk should be especially concentrated on Grades A and B.

Traumatic Lesions of the Eye.

Dr. Mulgund, who during the war had under his care an eye hospital accommodating 600–800 eye cases, besides 1000 trachoma cases, has issued a little book on the above subject, comprising his war experiences. In this book he presents the general principles of treatment of trauma of the eye, remarking with regard to prognosis that all nervous disturbances in the orbit resulting from pressure of extravasated blood in the region are capable of complete retrogression, while direct lesions of the nerves usually persist unchanged. Special care must be taken to prevent drying or ulceration of the cornea when the eyeball protrudes or the lids do not close perfectly. If inflammation develops in the orbit from infection from the nose the prognosis is almost inevitably bad. Emphysema, on the other hand, has an excellent prognosis. Treatment of all fractures deep in the orbit should be exclusively conservative. With much suggillation a compressive bandage, ice-bag, and complete repose may be indicated. Only with extreme protrusion of the eyeball or very severe emphysema is it necessary to relieve by evacuation of the blood at the most swollen part of the orbital tissue. Direct operative measures are necessary if there is a fracture of the walls of the orbit with dislocation. Compound fractures should be treated on the usual surgical principles. Mulgund adds, in conclusion, that in every extensive compound fracture of the orbit, as also in every case of extensive injury of the soft parts in which contamination with soil cannot be absolutely excluded, a preventive injection of tetanus antitoxin should be given.

A Note on Antimalarial Operations in Albania.

The country of Albania is partly mountainous and partly a plain intersected by a network of rivers and streams, and abounding in pools, swamps, and forests. The latter is a paradise for mosquitoes. During the occupation of Albania by the Austro-Hungarian Army in 1916 the Surgeon-General deputed a native doctor, Dragomir Petrovic, to survey the country for the purpose of devising measures for the suppression of malaria. The suggested undertakings included improvement of drainage, destruction of the mosquito's breeding-places, and distribution of quinine during the fever season at an estimated cost of 3,500,000 kronen (quinine being at that time excessively dear). His report for the five years, 1916–20, published in January, 1921, indicates that these suggestions were put into active operation during this period. Drains were levelled and cleared or filled up, forests cut down, compounds cleared, pools abolished, tanks and watercourses systematically oiled by gangs of soldiers and ex-soldiers, and quinine lavishly distributed. This work appears to have been strenuously carried out at a cost of over 7,500,000 kronen. Dr. Petrovic considers that the statistics for 1920 show a slight diminution of malarial disease; but these statistics are not very reliable, and the present chief sanitary inspector of the district thinks that it is still too early to form any definite conclusions. Similar operations were carried out in Bosnia with still more doubtful results. Screening houses with wire gauze was tried there, but the inhabitants objected on account of interference with ventilation.

Feb. 18th.

SCOTTISH WOMEN'S HOSPITALS HONOURS.—The King has granted to the following medical members of the Scottish Women's Hospitals for Home and Foreign Service permission to wear decorations of the Order of St. Sava, conferred upon them by the King of the Serbs, Croats, and Slovenes in recognition of their services to the Serbian sick and wounded in the late war:—Fourth Class: Dr. Beatrice A. McGregor. Fifth Class: Dr. Lilian M. Chesney, Dr. Janet McVea, Dr. Elizabeth Brook, Dr. Catherine L. Corbett, and Dr. Janet S. Laird.

Public Health.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

COUNTY OF BEDFORD.

Dr. H. Kenwood, in his annual report for the year 1919, explains that for the statement of birth- and death-rates respectively two somewhat different estimates of population are employed. The "death-rate population" excludes all non-civilian males, whether serving at home or abroad. This is necessary for the purposes of local death-rates, because it has proved impossible to transfer the deaths of non-civilians to their areas of residence, or to deal in any other satisfactory manner with the local mortality of this element in the population. These estimates are based mainly upon the rationing returns placed at the Registrar-General's disposal by the Ministry of Food. The "birth-rate population," on the other hand, is intended to include all the elements of the population contributing to the birth- and marriage-rates. It consists, therefore, of the "death-rate" for civilian population plus all non-civilians enlisted from this country, whether serving at home or abroad. This non-civilian element has been distributed over all the districts in the country in proportion to their estimated civilian population. The county birth-rate for the year under review was 15·9, as compared with a rate of 15·5 in 1918 and 16·0 in 1917. The general death-rate was 11·0. It is interesting to note that the death-rate for the rural districts exceeded that for the urban districts, a circumstance which doubtless is sufficiently explained by the considerable exodus from the rural districts of persons from 15 to 30 years of age, among whom the death-rate is exceptionally low.

Dr. Kenwood makes some interesting remarks on the recent *influenza* epidemic, which caused a civilian mortality throughout the country at the rate of 4774 per million per annum, an epidemic mortality not hitherto equalled in Britain since registration commenced. Nor does this heavy mortality truthfully represent the ravages of the disease; for the deaths attributed to pneumonia, bronchitis, heart disease, and phthisis were also markedly increased as the consequence of the influenza infection. Moreover, the age distribution of the attacks and of the deaths markedly departed from that of previous epidemics. From 15 to 35 were the years of highest mortality in the epidemic of 1918–19; whereas the most fatal years of previous epidemics were those of 55 and over. In Dr. Kenwood's view inoculation against the disease is of value in protecting against fatal complications rather than against attack of the disease. The Ministry of Health has made a vaccine available for distribution through medical officers of health to medical practitioners, and doubtless in the event of another epidemic this precautionary measure will be widely adopted. The epidemic showed the need of a promptly available supplementary personnel for temporary employment in time of public health emergency. Nurses are required in epidemics of influenza, measles, and whooping-cough who can visit all the poorer homes in which it can be ascertained that such disease has occurred, and it would be well if these services could be supplemented by a voluntary personnel suitably trained to offer good advice and to make inquiry with the view of ascertaining which cases are really necessitous. Our recent war experience has shown that there are in every community persons who would be able and willing to volunteer for such emergency services if they were invited to do so. Dr. Kenwood thinks that the suffering and mortality in an influenza epidemic could be materially reduced by adequate nursing assistance; a provision of fuel, food, and clothing to really necessitous cases; by hygienic advice, more particularly as to ventilation and the spacing out of the rest of the family; the distribution of a suitable disinfectant with directions as to its use; and the provision of more hospital isolation and treatment.

On the subject of the prevention and treatment of *tuberculosis* Dr. Kenwood remarks that the causes of the disease are largely economic, and the prevention is therefore largely in the hands of the social reformer. Better housing and the means to secure a more hygienic standard of living, the avoidance of excessive strain and too prolonged hours of work in badly ventilated premises, will all operate toward the reduction of the incidence of the disease by reducing the numbers of those with lowered resistance. But lowered resistance must be associated with exposure to infection if a person is to

acquire tuberculosis, and it is in connexion with the advanced cases that these two factors assert themselves most prominently. The subject of advanced phthisis is very often an individual who has been for some time incapable of earning a living wage, and therefore he and those dependent on him are frequently on the border-line of poverty. He is giving off large numbers of germs in surroundings which favour their transference to others, and these others, who are exposed to such "massive infection," have had their resistance lowered by all the circumstances associated with poverty. As Dr. Kenwood has pointed out in previous reports, our national scheme for the treatment and prevention of tuberculosis provides no effective remedy for this state of things; and, indeed, the real remedy is both difficult and costly. It is to be found in powers for compulsory removal of those thus exposing others to grave risks, and in suitable provision for their isolation in hostels.

Tuberculosis schemes are deficient in another important respect. The average stay in the sanatorium provided for the poorer section of the community is about 12 weeks. This period is valuable in several respects, but it is doubtful whether anyone is ever cured in much less than 12 months of sanatorium treatment, which, of course, implies abundance of fresh air, abundance of good food and rest, carefully regulated exercise or work, and skilled medical supervision. A patient who is not in very comfortable financial circumstances cannot maintain those essentials after his discharge, and so he gradually loses what he has gained on the road to recovery, and he mostly dies from tuberculosis within two years from the date of his discharge from the sanatorium.

JUVENILE EMPLOYMENT AT CARDIFF.

Occupational legislation, first by adopting the principle that there should be a minimum age for employment, and later by raising this age from time to time until the present limit was reached, which in its turn, when the Education Act of 1914 is in full swing, will be further advanced, has been in the interests of health aimed at removing from industrial influences those of tender years. Simultaneously education authorities have extended the scope of their activities, and in recent years have further found it necessary to supervise the health of those attending school. The parting of the ways, the moment when the juvenile leaves school and enters upon occupation, is one of peculiar interest to the medical sociologist. Up to the present the medical profession has taken but little part in directing the future of the youth. We should, however, take our part, and no apology is needed for commenting here on what is being done, especially by Juvenile Advisory Committees. One of the most efficient efforts in this direction is described in the fifth report[1] (for the year ending July 31st, 1920) of the Juvenile Employment and Central Care Committee of Cardiff, upon which all interests concerned are represented.

The report points out that conditions have not been normal during the past year owing to the exigencies of war creating conditions which gave the younger persons too great a degree of independence; in consequence they lost the sense of fairness and responsibility, and got an inflated sense of their importance. Welfare work in factories has proved of value, but in the Cardiff area work in this direction has recently been somewhat stationary. Acting under the City by-laws, a scheme has been adopted as from July 28th, 1920, under which among other things: (*a*) morning employment of scholars on school days is prohibited; (*b*) registration at the Juvenile Employment Bureau of all child employees and employers of children is obligatory; (*c*) employment cards must be used, containing records of school time and of various subsequent employments; (*d*) the hours of possible employment are restricted to from 5 P.M. to 7 P.M. on week days, to five hours on Saturdays, and 8 A.M. to 10 A.M. on Sundays; and (*e*) the minimum age for street trading is raised to 15 years. This scheme is one of the most advantageous yet adopted, and special officers are appointed to enforce compliance with its requirements. Evidence is given in the report that abuse of child employment in the past demanded action; one instance will suffice: "I met with one case where a boy regularly had nothing to eat between 8 A.M. and 5.30 P.M. owing to being employed in the dinner hour (lad since died)." The regulation which now prevents juveniles from leaving school except at the end of the term during which they attain the age-limit, is causing some inconvenience because employers have not yet learned to arrange that vacancies shall synchronise with term-ending periods; this inconvenience is probably temporary. Visits during school hours of parties of senior scholars to works and factories have proved of value in enabling them to make a better choice of occupation. For the moment tailoring is reported to be unpopular, and to be falling to the alien population; on the other hand, mechanical trades are much sought after, probably because they are controlled by unions able to secure good remuneration and conditions.

The Juvenile Employment Bureau is increasing in popularity with girls; during the period reported upon fresh applications were received from 2731 girls as against 1780 during the previous year. The bureau arranged 148 apprenticeships for girls (44 to tailoring) as against 165 for boys; in future training for domestic service is to be a feature of the work. The figures given indicate that many juveniles are not well placed at the first trial; thus, for boys 1721 vacancies were filled, of which only 468 were first places. Girls apparently settle down easier, since out of 1280 vacancies filled 512 were first places. Unfortunately no information is given as to length of service which follows placing. Here, rather than in the number of vacancies filled, lies proof of the employment bureau's work. We hope that the committee will look into this matter and publish results, laying stress on the length of employment which follows at different trades and occupations.

[1] South Wales Printing and Publishing Co., Ltd., Cardiff.

URBAN VITAL STATISTICS.

(Week ended March 5th, 1921.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate population estimated at 18½ million persons, the annual rate of mortality, which had increased from 12·3 to 15·5 in the five preceding weeks, fell to 15·2 per 1000. In London, with a population of 4½ million persons, the death-rate was 14·8, or 0·3 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 7·1 in Edmonton, 7·6 in Grimsby, and 9·2 in Wimbledom and in Bury, to 22·4 in Wakefield, 23·4 in Cambridge, and 25·3 in West Hartlepool. The principal epidemic diseases caused 259 deaths, which corresponded to an annual rate of 0·7 per 1000, and comprised 89 from infantile diarrhœa, 68 from whooping-cough, 62 from diphtheria, 20 from measles, 14 from scarlet fever, and 6 from enteric fever. Whooping-cough caused a death-rate of 1·3 in Sunderland, 1·4 in Edmonton, and 2·3 in Wigan. The deaths from influenza, which had increased from 61 to 138 in the four preceding weeks, further rose to 167, and included 45 in London, 9 in Hull, 8 in Newcastle-on-Tyne, and 6 in Leeds. There were 3738 cases of scarlet fever and 2809 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 3845 and 2800 respectively at the end of the previous week. During the week ended Feb. 26th 9 cases of encephalitis lethargica were notified in the County of London, and comprised 1 each in Battersea, Bermondsey, Bethnal Green, Greenwich, Hackney, Hampstead, Kensington, Paddington, and Woolwich. The causes of 30 of the 5422 deaths in the 96 towns were uncertified, of which 7 were registered in Birmingham, and 3 each in London and Gateshead.

Scottish Towns.—In the 16 largest Scottish towns, with an aggregate population estimated at nearly 2½ million persons, the annual rate of mortality, which had increased from 14·9 to 19·4 in the four preceding weeks, fell to 18·0 per 1000. The 413 deaths in Glasgow corresponded to an annual rate of 19·6 per 1000, and included 40 from whooping-cough, 21 from influenza, 6 from infantile diarrhœa, 4 from diphtheria, 3 from scarlet fever, and 1 from measles. The 152 deaths in Edinburgh were equal to a rate of 17·8 per 1000, and included 11 from influenza, 4 from measles, 2 from diphtheria, and 1 each from whooping-cough and infantile diarrhœa.

Irish Towns.—The 153 deaths in Dublin corresponded to an annual rate of 18·9, or 0·8 per 1000 above that recorded in the previous week, and included 4 each from influenza and infantile diarrhœa and 3 from diphtheria. The 141 deaths in Belfast were equal to a rate of 17·5 per 1000, and included 10 from whooping-cough, 4 from infantile diarrhœa, and 3 from influenza.

EASTBOURNE EAR, NOSE, AND THROAT HOSPITAL.

This hospital was opened at a house in Pevensey-road in the autumn of 1917. The demands made upon it soon overtaxed the accommodation, and on March 2nd last new premises were opened in Cavendish-place, the accommodation including two wards, operating theatre, consulting-room, and out-patients' waiting-room. In-patients can now be admitted, and many friends have come forward with generous help towards equipping the hospital with up-to-date appliances.

Correspondence.

"Audi alteram partem."

CHILDREN'S DIET.

To the Editor of THE LANCET.

SIR,—I was much pleased with the kind allusion to the "Nem-System" in Professor Gowland Hopkins's Huxley lecture (THE LANCET, Jan. 1st) and with the interest taken in the research work which is being done at my clinic by Dr. Elsie Dalyell, Dr. Harriette Chick, and their assistants. Dr. Hopkins appears to consider my opinion on the question of nutrition very different from his own; I do not think that there is such a contrast. He takes a special scientific interest in the different particular foodstuffs; I have specially studied their energy value: only the combination of both our systems can solve the problem in a satisfactory way.

In order to avoid the difficulty of the separate structural elements I treated protein as an undefined substance. I require at least 10 per cent. of the Nem-quantity to be given in the form of protein. Thus, when taking an ordinary human diet into consideration, there is a probability that all the necessary kinds of the structural elements are contained in it. I must own, however, that it is only a probability. In order to be quite sure all the foodstuffs would have to be examined in order to find out their content of structural elements. In the practice of everyday life this does not seem necessary; for, in combining the customary foodstuffs of our daily fare into a diet, varied according to the difference of days and of meals, we get so large a collection of single substances that we may be quite certain of their containing structural elements of all kinds.

I must remind you of the fact that none of the nutritive systems have hitherto been based on the exact *quantity* of structural elements. If we wanted to do this we should not only have to think of protein, but also of the mineral components, such as chlorides, potash, chalk, iron, &c. At certain periods in the past doctors were rather anxious as to whether one or the other substance was contained in the food in a sufficient quantity. Think of the time when medical science thought an addition to the food of iron, chalk, or phosphorus desirable. But this has not become a lasting custom, from which fact I should like to draw the following conclusion: the food of the omnivorous of all civilised nations will rarely completely lack single structural elements that are necessary, or contain less than the minimum, so that it would not be worth while to make their calculation a daily rule. Only water, the most important element of structure, was, as a matter of principle, taken into consideration by the Nem-System. I refer to Nobel's excellent experiments,[1] an abstract of which is to be found in my "System der Ernährung," Vol. IV., p. 393, in which the laws relating to the minimum content of water in diet are explained.

It is a little different with the vitamines. Even an abundant and varied menu may be without vitamines, for example, if it is composed of preserved foodstuffs. We have made it a practical rule that the diet must contain fresh vegetables or potatoes at least once every day. This rule was based on experience, as also the rule ensuring a certain coarseness or cellulose content of the diet, which is of such vital importance for the movement of the bowels, except in the first years of babyhood. I admit that in these two cases of the vitamines and of coarse food, instead of a vague recommendation, there ought also to be a quantitative rule, expecially in a system that requires such a detailed and graduated administration of food as the Nem-System prescribes. This quantitative rule might be determined by finding out the approximate content of cellulose and of the three important vitamines in all foodstuffs and then by summing them up, determining the necessary minimum that must be present in the diet, as I have done in the Nem-System for protein. I shall be glad if the English workers here will make practical proposals of this kind, and I am quite willing to incorporate them in the Nem-System.

With regard to the observations that are being made by the mission of the Lister Institute at my clinic I think I can already make the following statement:—

Especially when tried on bigger children, there is no essential difference between our diets, composed according to the Nem-System, and containing at least 10 per cent. protein, and a diet purposely rich in vitamines, and this for the very good reason that diets, arranged according to the Nem-System, do not consist merely of caloric elements, theoretically calculated, but of the customary mixture of ordinary foodstuffs. For the feeding of babies, however, I hope to draw much benefit from the result of the English researches. We have been giving to the babies a rather unvaried food, and we are ill-informed as to the vitamine content of milk, which forms the chief article of their diet. It has happened more than once that infants have acquired scurvy under our eyes because we gave them a diet that was poor in vitamines. Our bigger children have only once suffered from a real epidemic of scurvy, and that was in the time of the worst malnutrition, when, owing to the war, our kitchen could not be supplied with fresh vegetables and meat. I must admit, however, that the criticism with regard to our practice of overcooking vegetables is justified and we will follow the advice given in that direction.

If at that time we had known what we are now learning from the English school of nutrition, we should not have been so inactive in providing the necessary fresh foodstuffs, contenting ourselves with the fact that they did not arrive on the market of their own accord; but, like our English colleagues, we should have tried to get the necessary foodstuffs direct from the peasants. On the other hand, I hope, our English colleagues will have learned from us how to base their observations of nutrition upon a quantitative caloric foundation. It is not possible to regulate the details of *qualitative* feeding of human beings without first having discovered the caloric requirements of the child apart from the irregularities of preparation and of the child's appetite.

Thus we may both learn from each other, and I hope that these international studies will have good practical results which will make it clear to both the British and the continental practitioners who have hitherto disregarded the vitamine theory as well as the principles of quantitative nutrition, that the results of the new work on this subject are now ready to be carried into practice.

I am, Sir, yours faithfully,

Vienna. CLEMENS PIRQUET.

*** Professor v. Pirquet writes from an unrivalled experience. The only adverse comment to be made upon the Nem-System is its apparent neglect of the fat supply. In the diet of children can fat be replaced by sugar of the same caloric value?—ED. L.

[1] Zeitschrift für Kinderheilkunde, vol. xxii.

THE CONTROL OF BIOLOGICALS.

To the Editor of THE LANCET.

SIR,—Whilst the subject of standardisation of therapeutic substances is occupying the attention of scientists is it not incumbent upon us, in our own sphere, to remove an unnecessary inaccuracy in therapeutic usage by standardising the dosage of the product derived from thyroid gland more accurately than is at present the case? As has been pointed out elsewhere,[1] a considerable confusion has arisen in the administration of thyroid gland substance, which confusion is due, in part, to the discrepancies existing between the standard unit of dose used respectively in the British Pharmacopœia and by the commercial houses which supply the product; and, in part, to a lack of uniformity in the terms used in prescribing the substance. In the B.P. the dose is stated in terms of the dried gland; whereas, commercially, it is, with only one exception I believe, stated in terms of the fresh gland, which, bulk for bulk, contains much less of the active principle than does the desiccated substance. If thyroid tablet, gr. v., be prescribed, this can be rightly dispensed in terms either of the dried

[1] Brit. Med. Jour., 1917, ii.

gland or of the fresh gland; and upon the same prescription a patient may receive a dose equivalent to thyroideum siccum B.P. gr. i. from one chemist and a dose equivalent to thyroideum siccum B.P. gr. v. from another chemist. This error is constantly occurring and must potentially continue so long as the two units of dosage are available; but the difficulty would be entirely overcome if the nomenclature of the B.P. only were adopted by the profession. In this connexion such terms as thyroid extract, thyroid tablet, thyroid gland, or thyroid substance have no exact meaning, and the use of them leaves the intention of the prescriber a matter of uncertainty and doubt, which is neither scientific nor conducive to attainment of the best clinical results.—I am, Sir, yours faithfully,

Torquay, March 5th, 1921. A. E. CARVER.

AS OTHERS SEE US.

To the Editor of THE LANCET.

SIR,—The letters on this subject in your issues of Feb. 26th and March 5th are of psychological interest. If we class our profession as a *mixed group*,[1] "partly traditional and partly purposive," its spirit appears disturbed by threats at the tradition that the interest of the patient must come first and at the purpose of ameliorating the lot of humanity. It recoils from the attempt of the commercial spirit to lower the group ideal to a selfish financial level. This is an old trouble. The strength and truth of our traditions so ably upheld by your correspondents should soon reduce it again to unimportance.

Our group spirit seems to find a threat also in the various proposals for a (whole or partial) State service of medicine. Is this justifiable? The implied object of a State service should be to further the ideal objects of the profession. Experience suggests that this might be overlooked if the service had not the advantage of an inspiring declaration of ideals from leaders like Sir George Newman and Lord Dawson. The group ideal would be obscured or annihilated if the primitive altruistic tendencies of the individual doctor were not encouraged and utilised. Crude individualism would then triumph. I gather that this has happened to some degree in the panel service.

Again, recent experience suggests that such systems tend to subdivide into (1) an administrative, (2) a clinical service. The first rules the second. They become divided sharply in sentiment and purpose. Disaster to professional ideals follows. With administration as a detached end—a thing of supervenient forms, statistics, and costs—the interests of the patient disappear, and the amelioration of the human lot sinks to a secondary level. The clinician finds himself paralysed. He may submit to see his clinical and ethical standards destroyed. He may protest and starve. Perhaps then our group spirit is rightly perturbed. It wishes to be sure that no possible State service will injure our traditions and purpose in the slightest degree. Its anxiety is not allayed by critical examination of such experiments in State service as are now in progress. Without unity of spirit and purpose no group service can flourish; without declared and re-declared ideals it must fail. Once declared, ideals spread by "example, suggestion, and emotional contagion." The responsibility of maintaining them by appeal to the group spirit lies with those who occupy positions of prestige.—I am, Sir, yours faithfully,

March 6th, 1921. H. LAING GORDON.

To the Editor of THE LANCET.

SIR,—The letter of Dr. Harry Roberts in your issue of Feb. 26th lays bare the sad position into which the profession has fallen in the esteem of the public. Can anyone wonder when the public sees how doctors treat each other? Take a striking example. There are doctors with anything from 1000 to 4000 panel patients (I write with personal knowledge), and with good private practices, increased when we were on active service, remaining on the Pensions Medical Boards, absolutely indifferent to the struggle which many ex-Service men are having to make ends meet. These doctors have apparently no qualms in competing with the hard-hit ex-Service men, though they remained at home in safety of body and security of practice.

I am, Sir, yours faithfully,

March 4th, 1921. AN EX-SERVICE MAN.

[1] The Group Mind, by McDougall, 1920, p. 32.

REFERRED PAIN.

To the Editor of THE LANCET.

SIR,—There are two statements in Mr. J. E. Adams's letter in your issue of Feb. 19th which, I feel, call for comment: 1. That when the appendix is abnormally placed the cutaneous hyperalgesia has always been over the situation of this organ, as revealed by subsequent abdominal section. This has certainly not been my experience. I have operated upon many abnormally placed appendices, and have always found the cutaneous hyperalgesia, if present, to be over the typical "functional" area in the right iliac fossa, my observations in this respect agreeing with those of Ligat. The most striking instance was in an early case of acute appendicitis with epigastric pain, cutaneous hyperalgesia limited to the right iliac fossa, but with no deep tenderness anywhere. Operation revealed the entire absence of the cæcum, appendix, and omentum from the right iliac fossa. Eventually the cæcum and appendix were found deeply placed in the region usually occupied by the splenic flexure of the colon; the appendix was hugely and tensely distended with mucopus and its mucosa quite gangrenous. 2. That in assessing the value of clinical observations "negatives are surely of the same relative value as positives." It depends upon what one understands by "relative." As a positive clinical observation the presence of the sign of "loss of liver dullness" is of undoubted importance in the diagnosis of perforation of the alimentary canal, whereas its absence is of no value whatever in excluding such. Surely in a suspected case of early renal tuberculosis one positive finding of the tubercle bacillus in the urine is of greater value than 50 or more negative findings. As positive findings I consider the hyperalgesic "functional" areas of great value in determining the viscus primarily responsible in both acute and chronic abdominal lesions; I pay no attention whatever to negative findings. My experience is mainly with the "appendix," "gall-bladder," "gastro-duodenal," and "small intestine" areas, but last Friday night I was interrupted in my reading of Mr. Adams's letter of condemnation by a call from a practitioner in a neighbouring town to see with him an acute abdominal crisis, which we recognised as an intraperitoneal hæmorrhage from rupture of an ectopic gestation, but with absolutely no clue as to which Fallopian tube was concerned. The application of the "cutaneous hyperalgesia" test to the "functional" area for each Fallopian tube gave a most striking response on the left side, and at the operation the left tube was found to be the one ruptured.

I am, Sir, yours faithfully,

Manchester, Feb. 21st, 1921 ARTHUR H. BURGESS.

VITAMINES AND COMMON SENSE.

To the Editor of THE LANCET.

SIR,—Professor W. D. Halliburton, in the course of his letter on this subject in THE LANCET of March 5th, takes the opportunity of raising again the much-debated question of heated *v.* unheated milk. He says that he cannot see that "the simple process of pasteurisation is the danger that some extremists allege it to be from the point of view of vitamines." This, no doubt, is true as far as the vitamines are concerned, but Professor Halliburton has forgotten one or two essential facts in the biological properties of milk and of the infant. Escherich and Baginsky showed over 30 years ago that there is a direct antagonism between the fermentative and putrefactive organisms in the child's intestine, and Bienstock in 1901 demonstrated the fact that raw milk cannot be made to putrefy by inoculating it with putrefactive germs, whilst if the fermentative germs are destroyed by heating the milk putrefaction at once takes place.

Since these observations were first made numerous investigators have studied the problem and have in the main confirmed the results, but recently Lorenz described an outbreak of Y dysentery in a Hamburg orphan asylum, which he believes, as the result of clinical and experimental evidence, to have originated from boiled milk infected with *Bacillus dysenteriæ* Y in the orphanage kitchen. It is true that pasteurisation will afford some sort of protection against such diseases as diphtheria, scarlet fever, and enteric, but taking into consideration the fact that young infants are more or less immune against such diseases in virtue of their harbouring a considerable number of immune bodies transferred to them by the mother during their intra-life, the danger of communicating such diseases during non-epidemic periods, at any rate to very young infants, is almost insignificant. Whilst therefore the risk of conveying infectious diseases by means of raw milk is very slight, the danger of setting up intestinal putrefaction in infants on administering heated milk is very considerable.

I am, Sir, yours faithfully,

London, W., March 7th, 1921. W. M. FELDMAN, M.D.

DANGEROUS DRUGS ACT, 1920.

To the Editor of THE LANCET.

SIR,—A perusal of the Draft Regulations, made under the Dangerous Drugs Act, 1920, indicated they were rather unsuitable for hospital practice for reasons which need not now be stated. Representations were therefore made on behalf of hospitals, and a series of interviews took place at the Home Office at which the question was fully discussed, with the result that special regulations are being evolved which should prove quite acceptable to these institutions.

Although it is at the moment not permissible to give details, yet it may be stated that these new regulations will not add to the duties of the members of the medical and surgical staffs, and that for the hospital pharmacist they will involve very little more than the adaptation of the existing organisation of the hospital dispensary to meet a special set of circumstances.

I am, Sir, yours faithfully,

F. A. HOCKING,

March 3rd, 1921. Pharmaceutist to the London Hospital.

To the Editor of THE LANCET.

SIR,—The Council of the London and Counties Medical Protection Society, Ltd., which represents over 6000 members of the medical and dental professions, at its last meeting decided to offer strenuous opposition to the proposed Regulations under the Dangerous Drugs Act, 1920.—I am, Sir, yours faithfully,

HUGH WOODS,
General Secretary, London and Counties Medical Protection Society, Ltd.

Craven-street, Strand, W.C., March 4th, 1921.

PSEUDO-COXALGIA.

To the Editor of THE LANCET.

SIR,—I should like to associate myself with some of the remarks of my friend, Mr. A. S. Blundell Bankart, on the nature of the "recovery" in pseudo-coxalgia. It is true that in this disease during childhood, with a radiographic picture showing an extreme deformation of the head of the femur, there may be a complete absence of limp and shortening, and the limitation of abduction may at the moment in no way cause any true disability. Out of 17 cases I have under observation at the present time this grade of "recovery" is present in eight. But it is essential to remember that such an alteration in the mechanics of the hip-joint is likely to produce trouble in adult life. The radiographic end-result in these cases is an enlarged flattened head which is far too big for the acetabulum. This is shown quite conclusively in a number of my radiograms of hip-joints in adults who give a clear history of pseudo-coxalgia in childhood. In later life such hip-joints stand wear and tear badly, and may progress towards an osteo-arthritic stage. The limitation of abduction is now a serious defect.

For this reason I hold with Mr. Bankart that it is advisable to treat all cases of pseudo-coxalgia in the early stage by complete relief from weight-bearing, and, further, to maintain for a considerable time the position of abduction. This was originally recommended by Mr. Muirhead Little in 1915. I must confess that in my earlier cases I adopted a laissez-faire attitude, but in my more recent cases I have felt constrained to treat them as one does the initial stages of true tuberculous arthritis.

I am, Sir, yours faithfully,

Manchester, March 5th, 1921. HARRY PLATT.

To the Editor of THE LANCET.

SIR,—Mr. A. S. Blundell Bankart has done service to many patients by pointing out that in the above condition the advice, "No treatment is necessary," is wrong. Because the disease is not the ordinary hip disease, and may not be tuberculous, surgeons have hastened to excuse their patients from prolonged and perhaps irksome immobilisation, with regrettable results in shortening, limitation of movement, and consequent limp. Mr. Bankart, I think, is not alone in the method of treatment he adopts. Dr. Rollier, in his heliotherapy clinic at Leysin, has for years given up making any distinction as regards treatment between these cases and the ordinary cases of hip disease. All alike are treated by recumbency and extension until a radiogram shows regeneration of the head of the bone.

I am, Sir, yours faithfully,

Harley-street, W., March 5th, 1921. PAUL BERNARD ROTH.

TREATMENT OF DIPHTHERIA CARRIERS.

To the Editor of THE LANCET.

SIR,—In bringing my correspondence on the above subject to an end, I thank Dr. A. G. B. Duncan for recapitulating his "views and intentions" (THE LANCET, Feb. 26th, p. 459). Let me say that I still find myself unable to appreciate the necessity for his differentiation between "carrier" and "positive throat," and my hope is that with the more universal application of vaccine therapy (which Dr. Duncan agreed was effective in the "positive throat") the necessity will no longer arise for the term "carrier," as it does not appear wise to allow any "positive throat" to persist for such a length of time as would warrant the former "distinction." It would be matter for real regret if inaction in the first instance provided material for future experiment.—I am, Sir, yours faithfully,

JAMES LAW BROWNLIE.

Glasgow Corporation Laboratory, March 5th, 1921.

THE INTERNATIONAL UNION AGAINST TUBERCULOSIS:

A CONFERENCE IN LONDON.

To the Editor of THE LANCET.

SIR,—The next International Conference will be held in London from Tuesday, July 26th, to Thursday, July 28th, inclusive. The Conference will be open to members of the International Union against Tuberculosis and to delegates from countries within the League of Nations, and from the United States of America. The president of the International Union for the current year is Mons. Léon Bourgeois, President of the French Senate, who will be succeeded on the occasion of the Conference in London by Professor Sir Robert Philip of the University of Edinburgh. It is hoped that the opening address of the Conference will be given by Mons. Léon Bourgeois. The arrangements for the Conference are under the charge of the executive committee of the International Union in correspondence with the Council of the National Association for the Prevention of Tuberculosis.

The subjects proposed for discussion include the following: (1) The Modes of Diffusion of Tuberculosis throughout the Races of the World, to be opened by Professor Calmette; (2) the Rôle of the Medical Profession in the Prevention of Tuberculosis.

In the name of the International Union,

I am, Sir, yours faithfully,

LEON BERNARD,

March 3rd, 1921. Secretary.

Obituary.

SIR FELIX SEMON, K.C.V.O., M.D. BERLIN, F.R.C.P. LOND.,

SOMETIME PHYSICIAN FOR DISEASES OF THE THROAT, ST. THOMAS'S HOSPITAL.

Sir Felix Semon, who died at his residence, Great Missenden, Bucks, on March 1st, at the age of 72 years, was the son of a Berlin stockbroker, and was educated at Heidelberg, where his medical studies were interrupted by the Franco-Prussian War in which he served as a volunteer. Graduating M.D. Berlin in 1873 and obtaining the German States Diploma in the following year, he continued his medical studies in Vienna and Paris, devoting special attention to diseases of the throat on which the introduction of the laryngoscope was throwing a flood of light. Finally he came to London and entered at St. Thomas's Hospital, becoming in 1875 clinical assistant at the Throat Hospital in Golden-square. He was admitted a Member of the Royal College of Physicians of London and was elected a Fellow in 1885. In 1877 he became physician at the Throat Hospital, in 1882 physician in charge of the Throat Department at St. Thomas's Hospital, and in 1888 laryngologist to the National Hospital for Epilepsy, Queen-square.

His outstanding contributions to laryngology are his work on laryngeal paralysis and that on malignant disease of the larynx. The former research, begun in 1878, extended over a great number of years and was the subject of numerous papers. As a result there was established the law that goes by Semon's name regarding the proclivity of the abductors to paralysis in lesions of the nerve trunks and centres. Further researches both on his own account and with the late Sir Victor Horsley did much to elucidate the central motor innervation and showed, among other things, that it is probably impossible for a one-sided cortical lesion to produce laryngeal paralysis. As a result of these and other researches a most valuable generalisation was arrived at—namely, that laryngeal paralysis which involves the abductors (sometimes in association with the adductors, it is true) is due to organic disease, whilst motor paresis of the adductors is in the large majority of cases functional, more rarely myopathic, and then usually due to catarrh. Semon's work on malignant disease of the larynx was begun at a time when the subject was in a chaotic state. He first established the fact that of all parts of the larynx the cords were most liable to be attacked. His next undertaking was an investigation of symptoms and appearances facilitating the early recognition of the disease, and finally, with regard to the treatment of the condition, he advocated and practised the operation of laryngo-fissure which Sir Henry Butlin was beginning to revive as a result of Semon's work.

In addition to his neurological work and that on malignant disease Semon made numerous contributions which are collected in his two volumes, "Forschungen and Erfahrungen," published in 1912. Of these, the most important from a clinical point of view would seem to be the one concerning septic infections of the throat entitled, "On the Probable Pathological Identity of the Various Forms of Acute Septic Inflammation of the Throat and Neck hitherto described as Acute Œdema of the Larynx, Œdematous Laryngitis, Erysipelas of the Pharynx and Larynx, Phlegmon of the Pharynx and Larynx, and Angina Ludovici." His presentment of the clinical picture was striking, and his conclusions have since proved sound. Another paper of permanent value is entitled, "The Therapeutic Value of Complete Vocal Rest during Sanatorium Treatment of Laryngeal Tuberculosis." His advocacy of this method of treatment did much to bring about its employment at every sanatorium.

Semon's work for laryngology was not, however, only scientific. He devoted a large amount of time to the advancement of the position of the specialty, and did a great deal to bring about its recognition as an important section of surgery. In 1884 he originated the *Centralblatt für Laryngologie* and edited it for 25 years, making it a most valuable publication. In 1893 he founded the Laryngological Society of London, and later helped it to become, as a section of the Royal Society of Medicine, a virile organisation. As a delegate at international congresses he continued to uphold his view of the specialty, and I think it may fairly be said that each step of his career was marked by an increase of the esteem in which British laryngology in general was held by the medical profession.

Sir Felix Semon's reputation as laryngologist brought him many honours, and he held the honorary presidency or fellowship of laryngological societies of the principal countries of the world. In 1894 the German Emperor conferred on him the title of Royal Prussian Professor and in this country at the Diamond Jubilee in 1897 he received the honour of knighthood, and in 1902 the C.V.O. from which he was promoted to K.C.V.O. in 1905. In 1901 he became Physician Extraordinary to King Edward VII. On his retirement from London in 1911 British and foreign laryngologists testified their esteem by the gift of a purse containing £1040, which he presented to the University of London for the establishment of "The Semon Lecture Trust."

Of Semon's personal attributes Dr. F. de Havilland Hall, one of his oldest friends, writes:—

"Semon was of a singularly affectionate nature, and though quick-tempered his wrath was soon over, and his sunny nature reasserted itself. That which first inspired me with admiration for his ability was the masterly way in which he managed the subsection of laryngology at the great International Medical Congress held in London in 1881, when the late Dr. James Walker, of Peterborough, and I were his colleagues. At the beginning of each sitting Semon gave out in English, French, and German the programme for the morning, and also added a few words in Italian. For many years his neighbour, I had the fullest opportunity of seeing how honourably he acted up to the best professional ethics. On all sides I heard of his skill and kindness. Mention should be made of his musical gifts. While encamped outside Paris in 1870–71 he composed a march to the strains of which his regiment of Uhlans entered Berlin after peace was declared. One of the great treats of his friends was to hear him accompany his wife, who was a celebrated vocalist. He was also devoted to hunting, shooting, and fishing, and his friends will remember him for the staunchness of his friendship and his loving nature."

Of his three sons, all of whom held commissions in the British army, one is a medical man—Dr. Henry Semon, physician for diseases of the skin to the Great Northern Hospital.

THE LATE DR. J. WILSON ADAM.—The death took place at Aberdeen on March 5th of Dr. J. Wilson Adam, a well-known local practitioner. Dr. Adam, who was 61 years of age, was a very active man. During the war he did much relief work, and this, added to his own large practice, told severely on his health. He was suddenly seized with illness on March 1st, and never rallied. Dr. Adam was a son of the late Mr. John Adam, of Aberdeen. He graduated M.B., C.M. at Glasgow University in 1890 and started practice at Tarbolton, Ayrshire, where he remained for ten years. He returned to Aberdeen in 1900 and soon built up a large practice. He was at one time medical officer to the Aberdeen Dispensary. Dr. Adam is survived by a widow and a large family.

THE LATE DR. J. E. BULLOCK.—The death has occurred from pneumonia of Dr. J. E. Bullock, of St. Leonards, at the age of 67. He was educated at University College Hospital, and practised for many years at Ladbroke-grove, London. More recently he took up the special study of tuberculosis, and was for some time on the staff of the Eversfield Chest Hospital, St. Leonards-on-Sea. During the last period of the war he was engaged as tuberculosis medical officer for Northamptonshire. It was when filling a temporary vacancy there that he met his death. He translated Cornet's work, "Skrofulose," with marked success, and published numerous articles in the medical journals. He was recognised by all who knew him as a man of high character and extensive knowledge of medicine, kind and painstaking with his patients, and he will be greatly missed by a large circle.

Parliamentary Intelligence.

HOUSE OF COMMONS.

MONDAY, FEB. 28TH.

Dentists Bill.

Dr. ADDISON informed Mr. F. THOMSON that he was not in a position to name any definite date for the introduction of the Bill to amend the Dentists Act, 1878, but if there was a general desire in the House that the Bill should be introduced without delay, and if it would be treated substantially as an agreed Bill, the Government would be prepared to introduce it in the House of Lords at an early date.

TUESDAY, MARCH 1ST.

Feeding of Children in Central Europe.

Mr. KELLAWAY (Secretary to the Department of Overseas Trade) informed Sir H. BRITTAIN that British institutions were feeding over a quarter of a million children daily in Central Europe, and he was informed, though he could not vouch for the accuracy of the figures, that 2,750,000 children were being fed under the auspices of the American relief administration, and further numbers of children by other American organisations.

Remuneration of Panel Practitioners.

Captain Sir DOUGLAS HALL asked the Minister of Health if it was proposed to increase the remuneration of panel doctors owing to the burden of increased work which was thrown upon them in connexion with the compilation of the new medical records; and whether such increased remuneration would be met by larger insurance payments or smaller benefits, or whether it would fall upon the general taxation of the country.—Dr. ADDISON replied: The keeping of medical records has always formed part of the terms of service of insurance practitioners, and was taken into account when the rate of remuneration was settled by arbitration last year. No question, therefore, of increasing the remuneration arises.

Medical Men and the New Medical Records.

Captain Sir DOUGLAS HALL asked the Minister of Health whether his attention had been drawn to expressions of opinion which had recently been uttered by medical men and representatives of the profession regarding the uselessness, in a statistical scientific view, of the information which it was proposed to collect from the new records of insured patients; and whether, in face of that adverse opinion, he would withdraw the new rules and so prevent further waste of taxpayers' money and medical men's time, and the irritation of the working classes.—Dr. ADDISON replied: I am aware that some individual medical practitioners have criticised the form of medical record presented under the insurance terms of service, but nearly four-fifths of the members of the Departmental Committee, presided over by Sir Humphry Rolleston, which designed the form of the record, were members of the medical profession, and had regard not only to the statistical scientific uses of the records, but also, and indeed mainly, to their utility in the treatment of insured persons. The Panel Committees, which are the statutory bodies appointed to express the views and wishes of insurance practitioners, have decided, not unreasonably, to defer any formal expression of opinion in regard to the records until the insurance practitioners have had adequate experience of the arrangements.

WEDNESDAY, MARCH 2ND.

Medical Man's Indian Contract.

Mr. THOMAS GRIFFITHS asked the Secretary for India whether he was aware that Dr. A. D. Denning, of Stafford, entered into a contract with the Indian Government for five years' service in India; that at the end of three years the contract was terminated on medical grounds which were afterwards found to be erroneous; that subsequently it was claimed and upheld that, despite any contract, the services of a servant could be terminated at the will and pleasure of the Crown; that the India Office had since granted Dr. Denning £500, which was not sufficient to cover his costs in the legal action, and that consequently Dr. Denning was without compensation for the loss of his appointment; whether this case would have further consideration; and whether, in order that men of ability might be encouraged to enter into these contracts, he would consider the advisability of abandoning the claim that service could be terminated at the will and pleasure of the Crown.—Mr. MONTAGU replied: The facts referred to in the first two parts of the question are generally as stated, except that the medical grounds on which Dr. Denning's contract was terminated were not found to be erroneous. As regards the third part of the question, Dr. Denning subsequently brought an action for breach of contract, or, in the alternative, for wrongful dismissal; the Secretary of State for India in Council contended that Dr. Denning's service was terminated in accordance with his agreement by which he undertook to obey the rules prescribed for his branch of the public service; these rules provide for the termination of an officer's duty on grounds of ill-health; but the case was settled on a preliminary point of law that no action can lie against the Crown for the termination of such service at the pleasure of the Crown; in view of certain comments made by Mr. Justice Bailhache on the form of the agreement (an old form which was altered some years ago), Dr. Denning was granted, by the Secretary of State for India in Council, £500 on account of his costs; I am not aware that this sum is insufficient for the purpose, nor that he has any claim, on the merits, to compensation for the loss of his appointment. I do not think that this particular case calls for further consideration. As regards the last part of the question I am advised that it would be improper to introduce in the contracts referred to any words purporting to limit the right of the Crown to dispense with the services of its officers, but this right would naturally be used, if at all, only in very exceptional circumstances.

Security of Tenure for Medical Officers.

Sir PHILIP MAGNUS asked the Minister of Health what progress had been made in giving effect to the promise made in his letter of May 21st, 1920, in pursuance of a previous promise of the Local Government Board, to proceed with an Order to give security of tenure to whole-time medical officers and to his proposal to include sanitary inspectors and inspectors of nuisances in the Order on the same terms.—Dr. ADDISON replied: This matter has been under consideration. I am advised that legislation would be required to give security of tenure to existing officers, and the Order which will shortly be issued must therefore be confined to new appointments of the classes mentioned.

Public Health Officials at Bromley.

Dr. ADDISON, in reply to Lieutenant-Colonel JAMES, stated that the whole-time public health staff employed by the Bromley borough council consisted of two inspectors of nuisances and two health visitors, acting under the general supervision of the medical officer of health. There were in addition certain officers employed on school medical services. The appointment of a medical officer of health rested with the borough council and the original proposal to employ a whole-time medical officer of health came from them. In addition to performing the duties of medical officer of health the officer in question would act as supervising school medical officer and would be in charge also of the maternity and child welfare work of the borough. He was advised that the proposed arrangement would be both economical and useful, and he did not therefore see his way to withhold his general approval of the proposal. The only protest he had received was from the honourable and gallant Member himself.

Medical Record Cards.

Mr. FORREST asked the Minister of Health whether he was still receiving any protests from panel doctors as to the work entailed by filling up the new forms of cards; and, seeing that the time so employed diminished the amount of attention which could be given to individual patients, would he inquire into the whole matter to see how the system is working.—Dr. ADDISON replied: I would refer the honourable Member to the answers to the questions which I gave yesterday on the subject of the medical record cards to Captain Sir Douglas Hall. I cannot accept the view that the keeping of records must detract from the time available for giving adequate medical treatment. In the majority of insurance practices the practitioner is responsible for less than one-fourth of the number of insured patients for which, in the view of the doctors' own representatives, an ordinary practitioner can safely assume responsibility. I may say that the number of objections to the record cards from medical men and others concerned in working the system is insignificant. Out of some 150 Panel Committees, representing some 12,000 medical men on the panel, I have only received protests from 9, and those are mostly on points of detail, although every effort has been made to stir up discontent in this matter by certain persons.

The Spahlinger Treatment of Tuberculosis.

Mr. DEVLIN asked the Minister of Health whether the British Consul at Geneva recently sent to the Foreign Office a communication calling attention to the new treatment for tuberculosis, known as the Henri Spahlinger's method; whether this communication had been referred to him; whether eminent medical specialists in Switzerland, France, and other countries had testified to the remarkable percentage of cures effected by this treatment; what action, if any, the Department of Health had taken in this matter; and whether, in view of the attempts to stamp out this scourge, which levied such a heavy toll of lives in Great Britain and Ireland annually, he was prepared to say that a

full and prompt official medical investigation of this new treatment would be held.—Dr. ADDISON replied: I am aware of the communication to which the honourable Member refers. It appears that so long ago as 1913 to 1914 the serum in question was prepared and the matter was carefully explored by the Medical Research Council and by independent physicians, but the trials have not been sufficiently exhaustive to justify any definite and reliable conclusions. If and when supplies of the serum become available in this country I will certainly see that its efficacy is exhaustively tested. But I understand that a supply of the serum is not likely to be available for this purpose for some months, and that on account of the secrecy maintained as to its constitution and method of preparation it has hitherto been found impracticable for the recognised research laboratories in this country to investigate its properties and effects.

Fraudulent Cures.

Captain TUDOR-REES asked the Minister of Health whether his attention had been called to the advertisements of alleged cures for cancer and other diseases; and whether, with a view to protecting the public from the frauds and deceptions of these advertisers and from the ill-effects of their supposed remedies, he would introduce legislation to render such advertisements illegal.—Dr. ADDISON replied: The Proprietary Medicines Bill, which was introduced last session, was intended to give effect to the recommendations of the Select Committee which reported on this question in 1914. The Bill is now being revised to meet certain objections of the commercial interest concerned, and I hope it will be possible to reintroduce it during the present session, but I am unable at present to give any definite date.

Venereal Disease and Self-disinfection.

Lieutenant-Colonel FREMANTLE asked the Minister of Health whether his attention had been called to the Report of the Special Committee on Venereal Disease recently published, and to its recognition of the value of immediate self-disinfection; and what steps were proposed to be taken by his Department in the matter.—Dr. ADDISON replied: Yes, Sir. The matter to which my honourable and gallant friend refers is now under consideration, and all the relevant documents and evidence, including the Report mentioned, will be considered.

Maternity and Child-Welfare Centres.

Dr. ADDISON, replying to Sir K. FRASER, said that according to the last available information 43 persons (of whom 25 were men) were appointed during 1920 specifically as medical officers of maternity and child-welfare centres, the rate of remuneration not exceeding £1 11*s.* 6*d.* per session, and amounting in the aggregate to £3660 per annum. In addition 36 persons (of whom 10 were men) were appointed by local authorities during this period as whole- or part-time medical officers for maternity and child-welfare work generally at salaries ranging from £150 to £750 per annum. Their duties included in every case more or less direct supervision of the work of centres, but it was not possible to make any apportionment of their salaries to that specific purpose or to estimate even approximately what proportion of the total annual cost of welfare work was attributable to this branch of the service. Milk, and in special circumstances other food, might be provided at less than cost for expectant and nursing mothers and for children under 5 years of age where such provision was certified by the medical officer of a centre or by the medical officer of health to be necessary and where the case was necessitous.

Industrial Fatigue Research Board.

Mr. MILLS asked the Minister of Health whether his attention had been drawn to the decision of the Treasury to withdraw financial support from the Industrial Fatigue Research Board, and suggesting that any important work on hand might be transferred to industrial or voluntary organisations; whether he was aware of the valuable work done by the Board since its inception in 1918; that there were no organisations in existence capable of taking over the Board's work; that if the Treasury decision was carried out the last year's work of the Board would be wasted; that it would result in a set-back in the whole movement of the study of human efficiency, and would involve the discharge of about 20 investigators who had specialised in the work; and whether, having regard to all the circumstances, the Treasury decision would be reconsidered.—Dr. ADDISON replied: The expenditure on the Industrial Fatigue Research Board is naturally being reviewed with all other public expenditure in the light of the imperative need for economy. The Board itself will in any case be continued, and I think I can safely promise that sufficient funds will be provided to secure its efficiency. The Government are very fully alive to the considerations mentioned by the honourable member.

The Question of Attributability.

Lieutenant-Colonel Sir JOHN HOPE asked the Minister of Pensions whether, in the case of a soldier who was passed into the service as fit for general service and served overseas and on discharge was declared by a medical board to be unfit for general service, the burden of proof as to whether the disability was attributable to or aggravated by service lay on the soldier or on the Ministry.—Mr. IAN MACPHERSON replied: In the circumstances stated the burden of proof would lie on the Ministry rather than on the man. The fact that the man had gone overseas fit, and returned unfit, would raise a presumption that his unfitness was due to his service, and unless there was good evidence, on the facts of the particular case, that it was not so due, the Ministry would accept the liability.

THURSDAY, MARCH 3RD.

Disability Pension Awards.

Captain REGINALD TERRELL asked the Minister of Pensions how many cases there had been in which an ex-Service man or his widow had claimed a pension which had been refused on the ground that the disability was not the result of war service; and whether he was aware of the dissatisfaction which some of these decisions were causing.—Colonel GIBBS (Lord of the Treasury) replied: The number of cases in which pension has been refused to an ex-Service man on the ground that the disability was not due to service was 257,000. In the case of widows the records of the Ministry do not show refusals before April 1st, 1920. The number of rejections since that date is 6900. In all cases of refusal, whether of men or of widows, there is a right of appeal.

Mr. TREVELYAN THOMSON asked the Minister of Pensions if he was aware of the dissatisfaction felt both by local pensions committees and by ex-Service men as regards the awards of disability pensions; and could he see his way to recommend the Government to so remodel the present system as to ensure a greater feeling of confidence in the public mind with the ultimate awards.—Colonel GIBBS replied: I am not aware of any grounds for dissatisfaction with the present system under which pensions are awarded in accordance with the amount of disablement due to service, the man having the right of appeal to a medical appeal board on the question of assessment and to an independent tribunal on the question of attributability.

Mr. WATERSON asked the Minister of Pensions whether he was aware that many demobilised Service men had died from various diseases which they had contracted during war service, the final stages only developing in civilian life; if anything could be done for the widows and children of such deceased men beyond the appeal to the House of Lords Appeal Tribunal; and if he would state the number of such appeals dealt with, stating the number successful or otherwise.—Colonel GIBBS replied: The Appeal Tribunals have heard and decided 1978 appeals lodged by widows against decisions by the Ministry that the disease from which the husband died was not contracted in or aggravated by his service. Of these appeals 523 were allowed and 1253 rejected. The decisions of the Tribunals are declared by the War Pensions (Administrative Provisions) Act, 1919, to be final.—Mr. WATERSON: Is the honourable gentleman aware that many of these appeals that have gone to the Appeal Tribunal have been turned down thereby inflicting great hardship on the widows, particularly when the doctor's certificate of death certifies that the disease was contracted during military service.—Colonel GIBBS: These Appeal Tribunals consist of one doctor, one lawyer, and an ex-Service man.—Mr. LAWSON: Does the Tribunal consider the man's medical sheet during his service, and is due weight given to the local medical man's opinion?—Colonel GIBBS: I must ask the honourable Member to put any question down.—Dr. MURRAY: As the honourable and gallant gentleman cannot answer, why is not the Minister of Pensions here. Is he electioneering?—No answer was given.

Pension Suspensions.

Major GLYN asked the Minister of Pensions whether he was aware that in the event of a dependent entering a rate-aided institution, for instance, a lunatic asylum, the pension to which such an individual was entitled was suspended during such period as the dependent remained an inmate of the institution; whether the ratepayers under these circumstances in fact had to shoulder a responsibility that was really the State's obligation; and whether, in such circumstances, he would consider the desirability of providing that in lieu of suspension of the money to which the individual was entitled it should be paid to the local authorities in relief of the rates until the inmate emerged from such an institution.—Colonel GIBBS: The facts are substantially as stated in the first part of the question. The matter is at present under consideration.

Mortality from Tuberculosis.

Lieutenant-Colonel RAW asked the Minister of Health whether the exposure and hardships to which large numbers of healthy men were subjected to on active service had resulted in an increase in the mortality from tuberculosis.—Dr. ADDISON replied: Although the conditions of active

service no doubt increased the mortality from tuberculosis in weakly men and in those already suffering from tuberculosis, I am advised that there is no evidence to show that there has been an increased mortality from this disease among men who were healthy on entering upon naval or military service. I am glad to say that the latest statistics indicate that there was in 1919 a very large decrease in the number of deaths from tuberculosis in England and Wales, including both pulmonary and non-pulmonary forms; the figures for 1919 being 46,312, as compared with 58,073 in 1918 and 55,934 in 1917. I am glad also to say that the figures for 1920 so far as they are at present available indicate another decrease.

Housing and Tuberculosis Bills.

Dr. ADDISON informed Mr. Ormsby-Gore that he proposed to reintroduce the Housing Bill and the Tuberculosis Bill before Whitsuntide. He was not at present able to say whether he would introduce any other Bills affecting public health or local administration this session.

MONDAY, MARCH 7TH.

Disability Pension Awards.

Lieutenant-Colonel Sir JOHN HOPE asked the Minister of Pensions whether in assessing disability percentage medical boards took into consideration a soldier's previous occupation or trade in which he was skilled; and if a miner who had a stiff knee which would prevent him working at the coal face would be assessed at the same percentage of disability as a soldier who had been employed in a sedentery occupation, and in whose case a stiff knee would not force him to learn and take up a new occupation.—Mr. IAN MACPHERSON replied: The flat rate disablement pension is awarded without reference to previous occupation. In substitution for it, however, and subject to the conditions stated in the Warrant, a man may claim an alternative pension which is based on actual loss of earning capacity, having regard both to his former occupation and to that which his disablement permits him to follow.

Insurance Medical Records.

Mr. MYERS asked the Minister of Health whether he had received any complaints regarding the new form of medical card under the National Health Insurance scheme; whether he was aware that objection was taken to the new card on the ground that it was too inquisitorial; and whether he would give this objection his consideration.—Dr. ADDISON replied: The number of complaints which I have received about the insurance medical records is quite insignificant, consisting of representations from five only out of 10,000 approved societies and branches, none from any of the insurance committees, and nine, mainly on points of detail, out of the 150 panel committees representing the medical men on the panel. The card is in substitution for two others used since the commencement of the Act and has been designed mainly to give to insured patients the advantages enjoyed by private patients in those practices where doctors keep records, and are thereby enabled to be guided in treating current symptoms by reference to the patient's previous medical history.

Mr. D. HERBERT asked if at least one of the cards to which the right honourable gentleman referred was given up because it was found practically impossible for the doctors to keep it.—Dr. ADDISON: That is quite true; that is one of the reasons why the revised card was designed. The old card was quite useless.—Mr. D. HERBERT: Am I to understand that the new card is supposed to give the doctor less trouble than the old one?—Dr. ADDISON: It certainly gives him much less trouble. I will send the honourable Member a copy.—Mr. D. HERBERT: I have seen and studied one of these cards with several doctors, who take a different view.—Dr. ADDISON: It was designed by doctors, and mainly panel practitioners, with a view to assisting themselves in their work. It is not an invention of mine.—Sir W. H. DAVISON asked if any of the members of the medical profession were consulted before the card was issued?—Dr. ADDISON: I have said that the card was designed by a committee consisting solely of members of the medical profession—a large percentage of them being men in insurance practice.

Standardisation of Potent Drugs.

Sir J. D. REES asked the Minister of Health whether he was devising a series of expensive measures relating to the control of sera and therapeutic substances, including a controlling authority, a big central laboratory, and other machinery, in consequence of a report of a recent departmental committee appointed to consider that subject.—Dr. ADDISON replied: My honourable friend's question clearly refers to a report contained in a leading article of the *Times* of Friday, Feb. 25th. There is no truth in the suggestion that I am devising any measures of the kind indicated. From 1909 onwards suggestions have been made by the General Medical Council and other influential bodies for some methods for securing a certain measure of standardisation of sera and other potent drugs and substances which cannot be tested by ordinary chemical means. In this desire I may say the responsible drug-manufacturing firms appear to concur, and it must be remembered that some of these substances are made abroad as well as in this country. The Committee reported to me during January of this year, and the chairman, Sir Mackenzie Chalmers, on his own responsibility suggested a draft Bill. When the matter came before me in January I took the view that action on the lines indicated of the proposed Bill was not practicable. So far as I have examined the subject, the Committee appeared to contemplate that the Medical Research Council, which already has laboratory equipment, should supervise the carrying out of whatever tests might prove to be required. No action whatever has been taken upon the report or any recommendations made to my colleagues, and the intentions attributed to myself to which my honourable friend refers are entirely fanciful.

TUESDAY, MARCH 8TH.

Medical Practitioners and Drug Regulations.

Major BARNETT asked the Secretary for the Home Department whether the draft regulations proposed to be issued under the Dangerous Drugs Act, 1920, required all persons dealing in morphine, cocaine, ecgonine, and heroin to keep four separate and distinct poison books, to enter in such books from day to day particulars of drugs purchased and of drugs supplied, and to make returns to the Secretary of State from time to time, and as and when required, of drugs so purchased and stocks held; and, if so, whether he would consider the desirability of exempting duly qualified medical practitioners who dispensed their own prescriptions from regulations which must necessarily prove irksome and oppressive, and involve an intolerable tax upon their time.—Mr. SHORTT replied: I have received representations from the British Medical Association as to the records which would require to be kept by medical practitioners who dispense their own prescriptions, and I have communicated to them certain modifications which I should be prepared to make in the draft regulations. The matter is still under consideration.

Major BARNETT asked the Secretary for the Home Department whether the draft regulations proposed to be issued under the Dangerous Drugs Act provided that any package or bottle containing certain specified drugs should have plainly marked upon it the name of the drug and the amount which it contained, whether the effect of this provision would be to give patients information which, in many cases, it was desirable that they should not possess; and, if so, whether he was prepared to exempt from its operation the prescriptions of duly qualified medical practitioners.—Mr. SHORTT replied: I have received representations from the British Medical Association on the point and have informed them that I am willing to agree to the exception suggested.

Farmers and Drug Regulations.

Mr. KILEY asked the Secretary for the Home Department if he would state in what way he proposed to provide, under the Dangerous Drugs Act Regulations, for farmers to procure drugs coming under the regulations for the use of their cattle; whether he proposed that such cattle medicines should be denaturised; and, if so, whether the Chancellor of the Exchequer had been consulted.—Mr. SHORTT replied: The whole question, including a suggestion as to the possibility of denaturing the drugs supplied for use by farmers, is under consideration, but I am not in a position to make any statement at present.

Insured Persons and Sanatorium Benefit.

Mr. WIGNALL asked the Minister of Health whether, now that sanatorium benefit had been eliminated from the health insurance scheme, he could state when it was proposed to take the necessary action to carry out the pledge that insured persons would not suffer any deprivation of the benefit.—Dr. ADDISON replied: The date fixed for the termination of sanatorium benefit in England and Wales is April 30th next, and I am hoping to introduce shortly a Bill dealing with the arrangements to be made for the treatment of tuberculosis after that date.

Pension Appeals.

Mr. CAPE asked the Minister of Pensions how many appeals had been heard by the House of Lords Appeal Tribunal during the period Feb. 28th, 1920, to Feb. 28th, 1921; and how many of the tribunal decisions had been in favour of the applicants and how many against.—Mr. IAN MACPHERSON replied: The number of appeals heard by the Pensions Appeal Tribunals during the period stated was 14,487. Of this number, 4384 were allowed and 10,103 rejected.

Cost of Medical Pensions Administration.

Lieutenant-Commander KENWORTHY asked the Minister of Pensions what was the total annual cost of the administration of the Ministry of Pensions divided into general and medical, the number of pensioners, exclusive of widows, children, and dependents, in receipt of disability pensions on August 1st, 1920, and on Feb. 1st,

1921, and the sums paid to these disabled men at these rates; the annual expenditure incurred in respect of the medical boards for examining disabled pensioners, the amount of the salaries and fees paid to whole-time medical officers and part-time medical officers engaged on this duty; how many whole-time medical officers were employed by the Ministry on August 1st, 1920, and on Feb. 1st, 1921; how many disabled men who were in receipt of disability pensions on August 1st, 1920, had now ceased to draw pensions by reason of death, being settled by gratuity or a final weekly allowance in lieu of pensions, and of their disability having become less than 20 per cent.; how many disabled men were in receipt of disability pensions of 20 and 30 per cent.; and what was the Parliamentary authority, if any, for the constitution of medical boards composed of three medical men.—Mr. MACPHERSON replied: The expected total annual cost of administration for the current year approximates to £6,500,000, £3,000,000 of that amount relating to general administration, £2,300,000 to medical services, and £1,200,000 to Local War Pensions Committees. The number of persons (excluding widows, children, and dependents) in receipt of pensions at August 1st, 1920, was 1,117,000, and at Feb. 1st, 1921, 1,060,000; and the respective annual cost thereof £61,598,000 and £60,484,000 approximately. The annual expenditure incurred in respect of medical boards is £1,712,000, the cost in salaries and fees to medical officers being £994,000. There were 565 whole-time medical officers employed on August 1st, 1920 (215 being engaged at institutions) and 592 employed on Feb. 1st, 1921, of whom 267 were engaged at institutions. The number of disabled men who were in receipt of pensions at August 1st, 1920, and whose pensions have ceased for the reasons stated is 103,000. The number of 20 and 30 per cent. pensions in payment at Feb. 1st, 1921, is 300,000 and 245,000 respectively. With regard to the last part of the question, my honourable and gallant friend will no doubt recollect the agitation in Parliament and elsewhere, which led to the formation of three-men boards for national service.

Health of the Troops in Cologne.

Lieutenant-Colonel BUCKLEY asked the Secretary of State for War whether his attention had been called to grave allegations concerning the Army of the Rhine which had been made by the Rev. W. Talbot Hindley, a chaplain of the Territorial Force; and, in particular, whether there was anything to justify the statements that the conditions of life in Cologne made a death-trap for our soldiers; that 95 per cent. of one unit had been through hospital; and that there was a cemetery which was largely filled with suicides and victims of venereal disease.—Sir L. WORTHINGTON-EVANS replied: My attention has been called to the allegations in question, and the Army Council are in communication with the reverend gentleman concerning them. There is no justification whatever for the statements attributed to him. During the period from Jan. 1st, 1920, to Jan. 31st, 1921, the monthly average of admissions for venereal disease was 1·4 per cent. of the total strength; there were 85 deaths from all causes, but none from venereal disease, and only 5 from wounds self-inflicted.

The Services.

ARMY MEDICAL SERVICE.

Col. L. P. More is placed on half pay.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. M. P. Corkery is placed on retired pay on account of ill-health contracted on active service.

Major T. E. Harty relinquishes the acting rank of Lieutenant-Colonel.

Major C. Kelly is placed on the half-pay list on account of ill-health.

Major J. B. Clarke retires on retired pay.

Temp. Major J. H. Spencer to be Captain and to retain the temporary rank of Major.

ARMY DENTAL CORPS.

Temp. Major J. P. Helliwell, from Special List, to be Lieutenant-Colonel and to be Inspector of Dental Services.

SPECIAL RESERVE OF OFFICERS.

Capt. R. T. C. Robertson to be Major.

Capt. P. Walsh relinquishes the acting rank of Major.

Capt. E. T. H. Lea relinquishes his commission on appointment to the R.A.M.C. (T.F.).

TERRITORIAL FORCE.

Capts. J. L. Menzies and E. T. H. Lea to be Majors.

Capt. B. E. A. Batt (late R.A.M.C.) and Lieut. H. G. Kilner (from 5th Battalion Suffolk Regiment) to be Captains.

Capt. L. H. Taylor (late R.A.M.C.) to be Lieutenant, and to relinquish the rank of Captain.

Capt. L. D. B. Cogan resigns his commission and is granted the rank of Lieutenant-Colonel.

INDIAN MEDICAL SERVICE.

Temp. Lieut. D. T. P. Gay to be temporary Captain.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At a congregation held on March 5th the following were appointed members of the board of electors to the Sir William Dunn Professorship of Biochemistry:—

Professor Sir W. J. Pope, Mr. F. F. Blackman, St. John's; Professor T. B. Wood, Mr. W. B. Hardy, Caius; Professor W. M. Bayliss, Professor J. N. Langley, Professor J. S. Gardiner, and Professor C. J. Martin.

The following degrees were conferred:—

M.D.—E. J. Bradley, Jesus.

M.B. and B.Ch.—A. G. Shurlock, Jesus; N. W. Jenkin, Christ's H. B. Yates, Downing.

M.B.—E. E. Llewellyn, Christ's.

B.Ch.—F. N. Sidebotham, Clare.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held in February the following candidates passed in the subjects indicated:—

Surgery.—W. A. Bryce (Sects. I. and II.), Birmingham; A. R. Crane (Sect. I.), London Hosp.; Z. Khaled (Sect. II.), Cairo; G. G. Rigby (Sect. I.), Manchester; B. W. Roffey (Sects. I. and II.), St. Mary's Hosp.

Medicine.—W. A. Bryce (Sects. I. and II.), Birmingham; O. G. Fisk (Sects. I. and II.), Cambridge and London Hosp.; M. Foley (Sect. I.), Charing Cross Hosp.; B. W. Roffey (Sect. I.), St. Mary's Hosp.; H. W. Swann (Sects. I. and II.), St. Mary's Hosp.; J. Solomonoff (Sect. II.), London Hosp.; M. Tcherny (Sects. I. and II.), Zurich.

Forensic Medicine.—W. A. Bryce, Birmingham; E. C. T. Clouston, London Hosp.; O. G. Fisk, Cambridge and London Hosp.; M. Foley, Charing Cross Hosp.

Midwifery.—A. G. L. Brown, Westminster Hosp.; R. E. Williams, Guy's Hosp.

The Diploma of the Society was granted to the following candidates entitling them to practise medicine, surgery, and midwifery: Z. Khaled and H. W. Swann.

UNIVERSITY OF LONDON.—The ceremony of Presentation Day will be held in the Royal Albert Hall on Thursday, May 5th.

THE Croonian lecture will be delivered at the Royal Society on May 5th by Dr. Henry Head, F.R.S., on Release of Function in the Nervous System.

LONDON (R.F.H.) SCHOOL OF MEDICINE FOR WOMEN: APPEAL FUND.—An "At Home" was given by Lady Emmott, J.P., Mrs. Anstruther, and Dr. Christine Murrell on March 3rd, when the laboratories and lecture theatres were open to the guests, and short talks on the past, present, and future of the school and hospital were given by Lady Barrett, Dr. Louisa Garrett Anderson, Professor Winifred Cullis, and Dr. Dorothy Hare. An appeal for £500,000 is being made by this school, where an obstetric and gynæcological unit, directed by Professor Louisa McIlroy, has just been initiated.

ROYAL INSTITUTION.—Among the lectures to be given at the Royal Institution after Easter are four lectures by Professor A. Keith on Darwin's Theory of Man's Origin. Dr. C. S. Myers will give three lectures on Psychological Studies, one on Localisation of Sound, and two on Appreciation of Music. Dr. H. H. Dale will lecture on Poisons and Antidotes, and Mr. E. C. C. Baly on Chemical Reaction. The Friday evening meetings will be resumed on April 8th, when Dr. R. H. A. Plimmer will deliver a discourse on Quality of Protein in Nutrition. Discourses will be given in the course of the session by Sir James Walker, Professor W. Bateson, Professor E. H. Starling, Dr. Leonard Huxley, and others.

MEDICAL SOCIETY OF LONDON.—At the next meeting on Monday, March 14th, at 8.30 P.M., a discussion on Non-operative Treatment of Surgical Tuberculosis will be opened by Sir Henry Gauvain, followed by Sir A. Bowlby, Mr. T. H. Kellock, Dr. W. T. Gordon Pugh, and Mr. W. H. Trethowan.

Anniversary Dinner.—The 148th anniversary dinner of the Medical Society of London was held at the Wharncliffe Rooms, London, on Tuesday, March 8th, Sir William Hale-White presiding. After the usual loyal toasts the chairman gave an entertaining outline of the movements in the eighteenth century which gave rise to a number of medical societies, the Medical Society of London among them. As one who had stood out against compelling students to go to *bad* lectures he was a convinced supporter of the oral method in teaching and of the value of free discussion. Sir Anthony Bowlby proposed "The Imperial Forces," giving striking instances of what a medical service could do for an army, and what might be the results of its failure; Sir Robert Hill and Air-Commodore Fell replied. Sir John Bland-Sutton wittily proposed "The Visitors," Lord Justice Atkin and Dr. Russell Wells replying. Sir D'Arcy Power paid graceful tribute to the President. The occasion was one of good fellowship and happy reunion.

CHELSEA CLINICAL SOCIETY.—The annual debate will be held on April 19th, instead of as previously arranged.

KING EDWARD'S HOSPITAL FUND FOR LONDON.—Hospitals situated in the County of London or within nine miles of Charing Cross and desiring to participate in the grants made by this fund for the year 1921 should make application before March 31st to the honorary secretaries at 7, Walbrook, London, E.C.4. Applications will also be considered from convalescent homes within the above boundaries or which, being situated outside, take a large proportion of patients from London; also from sanatoriums for consumption which take patients from London or which are prepared to place beds at the disposal of the fund for the use of patients from London hospitals.

EDINBURGH UNDERGRADUATES IN PARIS.—A class composed of 18 men and 17 women students of the University of Edinburgh left England on March 5th for a four weeks' course of practical midwifery. The distinguished French teachers who will give lectures and demonstrations include Professor A. Couvelaire, Professor P. Bar, Professor M. Chauffard, Professor J. L. Faure, Dr. Legris, Dr. Vaquez, Dr. Bouffe de St. Blaise, Dr. J. Funck-Brentano, Dr. Latulle and Dr. Besançon, Dr. Margan and Dr. F. Widal. The students will work at the Clinique Tarnier, the Clinique Baudelocque, the Clinique de la Pitié, and will visit laboratories, museums, maternity and infants' hospitals. At the end of the course a certificate will be issued to those who have taken part.

DONATIONS AND BEQUESTS.—The late Mr. William Morrice Ledingham, of Aberdeen, has left personal estate of the value of £154,423 5*s.* 3*d.*, the residue of which is to be divided into 17 parts—four parts for the Aberdeen Royal Infirmary; two parts for the Aberdeen Royal Hospital for Sick Children; one part each to the Morningfield Hospital, the Ophthalmic Institute, the Aberdeen Dispensary, Maternity Hospital, and Vaccine Institute, the Aberdeen Nursing Association, the Aberdeen Ladies' Sanitary and Rent Aid Association, Newhills Convalescent Home, the Association for Improving the Condition of the Poor, Spurgeon's Home, Dr. Barnardo's Homes, Aberdeen Asylum for the Blind, and the Ophthalmic Hospital.—The residue of the property of the late Colonel Francis John Ryder, which will exceed £25,000, is to be divided between the Leeds Infirmary, London Hospital, Guy's Hospital, St. Thomas's Hospital, St. Bartholomew's Hospital, Charing Cross Hospital, and the University of Edinburgh.—The late Mr. Thomas Burnett Middleton, of Watson-street, Aberdeen, has left, free of legacy duty, £50 to the Aberdeen Royal Infirmary and £50 to the Royal Aberdeen Hospital for Sick Children.—The late Mrs. Eliza Bruce, or Wallace, Gowanlea, Ellon, leaves, free of legacy duty, to the Aberdeen Royal Infirmary £50.—As the result of a concert given by the staff of Messrs. John Falconer and Co., drapers, Union-street, Aberdeen, a sum of over £200 was handed over to the Sir James Taggart Fund for the Royal Aberdeen Hospital for Sick Children.

LIVERPOOL ROYAL INFIRMARY.—The annual meeting of governors was held on March 4th, when Dr. Richard Caton, the President, occupied the chair, and was supported by the Lord Mayor and the Vice-Chancellor of the University. Mr. Holford Harrison, the honorary treasurer, in submitting his report stated that during 1920 there had been 4198 in-patients and 27,110 out patients, the average daily attendance of the latter being 528. There had been a great increase in the attendances at the massage department. The number of pensioners in respect of whom payments were received from Government had decreased, but civilians had come forward in large numbers for massage treatment, and the necessary increase in the staff of masseuses had added to the expenditure of the hospital without any commensurate financial return. There was also a greater demand for treatment in the X ray department, and to bring the equipment up to present-day requirements a special expenditure of £1000 for new apparatus had been sanctioned. The total expenditure for the year amounted to £55,337, an excess of £6906 over the receipts. The balance-sheet would have shown a greater deficiency had it not been for a special contribution of £9000 from the Lord Mayor's Appeal Fund and receipts of £2802 from legacies. The financial position was a source of serious anxiety, and if the hospital was to continue its usefulness greatly increased assistance was necessary. Owing to the increased cost of maintenance the committee had found it necessary to raise the charge to "outside radius" in-patients to 20*s.* per week, and the desirability of making what contributions they could to the cost of their maintenance was being systematically laid before in-patients. The need for a new nursing home was becoming more and more urgent. Of the out-patients, 26 per cent. were insured persons making weekly contributions to the National Health Insurance scheme, from which the infirmary did not receive a penny. Dr. Caton, in moving the adoption of the report, said that the old class of generous subscribers to the voluntary hospitals were at present labouring under the burden of heavy taxation and could not be expected materially to increase their subscriptions. He hoped that the day was far distant when the hospitals would have to rely entirely on the State or the municipalities for their support, as such a change would be followed by diminished efficiency and probably trebled expenditure. If the infirmary was obliged to accept State or municipal aid he trusted it would be only a small defined proportion of their voluntary funds, so that voluntary support and the present method of government could be continued. Not a farthing of the National Health Insurance Fund was paid to the hospital, though many insured persons were treated there. This grievance should be pressed on the notice of the Government; the hospital might hope to receive £3000 or £4000 annually from this source. Voluntary contributions from in-patients might yield from £4000 to £5000. The Lord Mayor, in seconding the adoption of the report, agreed with the principle of asking patients to contribute towards their maintenance according to their ability. Mr. G. H. Melby was elected president for the ensuing year, and Mr. Holford Harrison was re-elected honorary treasurer. The report showed that the ordinary income was £2948 above that of the previous year—every source of income having shown an increase except the receipts in respect of ex-Service men. But, owing to the increased cost of commodities and the expenditure on long delayed works of cleaning and repair, the ordinary expenditure was £7030 above that of last year. The total ordinary income was £36,983, and the total ordinary expenditure was £24,361. A grant of £7500 was received from the Lord Mayor's Special Appeal Fund, but the amount from legacies was only £1807 as compared with £14,335 in 1919. There had been an increase in payments by, or in respect of, patients of £4652. Part of this very satisfactory improvement was due to the appointment of an almoner.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

ALEXANDER, R. C., M.B. Edin., F.R.C.S.E., has been appointed Visiting Surgeon to Dundee Royal Infirmary.

GERRARD, DORA W., M.B., Ch.B. Edin., Junior House Surgeon at the Children's Hospital, Sunderland.

IVENS, FRANCES, M.B., M.S. Lond., Honorary Surgeon to the Liverpool Maternity Hospital.

LYSTER, R. A., M.D., B.Ch. Birm., D.P.H., a Member of the Central Midwives Board.

MIDDLETON, E. L., M.D. Edin., D.P.H., Medical Inspector of Factories and Workshops.

RIVETT, L. C., M.C. Cantab., F.R.C.S. Eng., Obstetric Surgeon to Out-Patients at Queen Charlotte's Hospital.

STANNUS, H. S., M.D. Lond., M.R.C.P. Lond., Medical Adviser to the Board of Inland Revenue and Physician to Out-patients, French Hospital, London.

TANNER, W. E., M.S. Lond., F.R.C.S. Eng., Surgeon to Out-patients, The Evelina Hospital for Children, Southwark.

Certifying Surgeons under the Factory and Workshops Acts: LAURIE, A. M., L.R.C.P. & S. Edin. (Bridge of Weir and Kilmacolm); MACKENZIE, J. J. R., M.B., Ch.B. Edin. (King's Cliffe); SUGDEN, F., M.B., Ch.B. Vict. (Wansford).

Medical Referees under the Workmen's Compensation Act, 1906: EDINGTON, G. H., M.D. Glasg., and RUTHERFORD, H., M.B., C.M., for the Sheriffdom of Lanark.

Vacancies.

For further information refer to the advertisement columns.

Birmingham and Midland Homœopathic Hospital.—Res. H.S. £125.

Birmingham General Dispensary.—Res. M.O. £400.

Birmingham, Queen's Hospital.—H.P.'s, H.S.'s, Obstet. and Ophth. H.S., and Cas. H.S. £90 each.

Birmingham, St. Chad's Hospital.—Res. M.O. £100.

Bolingbroke Hospital, Wandsworth Common, S.W.—H.S. £150.

Bristol Education Committee.—Asst. Sch. M.O. £600.

Bristol Royal Infirmary.—Hon. Registrar and Hon. Surg.

Canterbury, Kent and Canterbury Hospital.—Res. M.O. £175.

City of London Hospital for Diseases of the Chest, Victoria Park, E.—H.P. £100.

Deptford Maternity Home and Maternity and Child Welfare Clinics.—Asst. M.O. £600

Dewsbury and District General Infirmary.—H.S. £250.

Dunrossness Parish.—M.O. and Vaccinator. £40.

Durham County Education Committee.—Asst. Oculist. £600.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—Anæsth. £50. Also Ophth. S.

East Sussex County Mental Hospital, Hellingly.—Sec. Asst. M.O. and Path. £450.

Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—Female Dentist to In-patients. £10 10*s.*
Enfield Education Committee.—Sch. Dent. S. £500.
Epsom, Manor Certified Institution for the Mentally Defective.—Med. Supt. £1000.
Freemasons Hospital and Nursing Home, 237, Fulham-road, S.W.—Res. M.O. £250.
Glamorgan County Asylum, Bridgend.—Jun. Asst. M.O. £415.
Great Northern Central Hospital, Holloway, London, N.—P. Also Anæsth. £10 10*s.*
Guildford, Royal Surrey County Hospital.—H.S. £150.
Holborn Union, Finsbury Hospital, Archway-road, N.—First Asst. M.O. £400.
Hospital for Epilepsy and Paralysis, Maida Vale, W.—Med. Registrar. £100.
Huddersfield Royal Infirmary.—Sen. H.S. £250. Two Jun. H.S.'s. £150.
Laboratories of Pathology and Public Health, 6, Harley-street.—Asst. Path. £450.
Liverpool, Brownlow Hill Poor Law Hospital.—Res. Asst. M.O. £300.
Liverpool, David Lewis Northern Hospital.—Two H.P.'s. Three H.S.'s. £120.
Liverpool Royal Infirmary.—H.P.'s., H.S.'s., and Sen. Cas. O. £60 each.
Liverpool, Royal Southern Hospital.—Two H.P.'s and three H.S.'s. £100 each.
London Homœopathic Hospital, Great Ormond-street and Queen-square, Bloomsbury, W.C.—Asst. S.
Maidstone, Kent County Ophthalmic Hospital.—H.S. £300.
Middlesex Hospital, W.—P.
National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—H.P. £150.
Newark Hospital and Dispensary.—Res. H.S. £200.
Newcastle-upon-Tyne City Mental Hospital, Gosforth.—Jun. Asst. M.O. £350.
Nottingham City Asylum.—Sec. Asst. M.O. £400.
Nottingham General Hospital.—H.S. £200.
Richmond Borough, Surrey.—M.O.H. £800.
Rochester, Kent, St. Bartholomew's Hospital.—Jun. Res. M.O. £200.
Royal Air Force, Air Ministry, Kingsway, W.C.—M.O.'s.
Royal General Dispensary, Bartholomew Close, E.C.—Res. M.O. £175.
Salford Royal Hospital.—Res. Surg. O. £250. H.P. £200. H.S.'s, and Cas. H.S. £150. Also Anæsthetist. £50.
Salop County Council, Medical Inspection of School Children, Maternity, and Child Welfare.—Asst. M.O. £517 10*s.*
Samoan Medical Service.—Three Jun. M.O.'s. £600.
Sheffield Royal Infirmary.—H.S. £150. Ophth. H.S. £150.
South Shields, Ingham Infirmary and South Shields and Westoe Dispensary.—Jun. H.S. £175.
Swansea County Borough.—Asst. M.O. £500.
Tiverton Hospital.—H.S. £100.
Tunbridge Wells General Hospital.—H.S. £160.
West London Hospital, Hammersmith-road, W.—H.P. and Two H.S.'s. £50. Also Asst. Anæsth.
West Riding County Council.—Asst. M.O. at Cardigan Sanatorium, Carr Gate, near Wakefield. £500.
Wolverhampton and Staffordshire General Hospital.—Hon. Specialist.
York Retreat.—Med. Supt. £800–£1000.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Horsforth, Clevedon, and Frome.

Births, Marriages, and Deaths.

BIRTHS.

ABRAHAM.—On March 4th, at 59, Cambridge-terrace, W.2, Lilian Angela (née Francis), wife of J. Johnston Abraham, C.B.E., D.S.O., F.R.C.S., of a daughter (Joan Lilian).

ASH.—On March 6th, the wife of H. Arnold Ash, M.R.C.S., L.R.C.P., of 59, Madrid-road, Barnes, of a son.

COURTNEY.—On March 6th, the wife of J. M. Courtney, M.R.C.S., L.R.C.P., of Bocking, Braintree, Essex, of a daughter.

MILLIGAN.—On Feb. 19th, at Woodlands-road, Ansdell, Lytham, Lancs, the wife of W. E. Milligan, M.B., B.S., of a son.

ROUTH.—On March 6th, at Norwich, the wife of Captain L. M. Routh, M.D., R.A.M.C., Military Hospital, Norwich, of a son.

MARRIAGES.

HUGHES—POLLOCK.—On March 1st, at All Saints' Church, Marseilles, Cecil H. M. Hughes, M.B., to Anne Athol, widow of W. Rivers Pollock, M.D., F.R.C.P.

WOOLRICH—BALLARD.—On March 3rd, at All Saints' Parish Church, Sanderstead, Surrey, William Grant Woolrich, M.A., M.R.C.S., to Lorna, eldest daughter of Mr. and Mrs. M. J. Ballard, Sanderstead.

DEATHS.

ARMSTRONG.—On Feb. 24th, at Quetta, of enteric fever, Captain (temp. Major) Edward Randolph Armstrong, M.D., D.P.H., D.T.M., I.M.S., D.A.D.M.S. (Sanitary), Quetta Division, in his 36th year.

DUKE.—On March 6th, at Eastbourne, Edgar Duke, M.D., M.R.C.S. (late Captain, R.A.M.C.), of Hove.

FRY.—On March 4th, at his residence, Tonbridge-road, Maidstone, Kent, John William Fry, M.R.C.S., L.S.A., in his 90th year.

GATLEY.—On Feb. 28th, at Mill Vale House, Bratton, Westbury, Charles Alexander Robertson Gatley, M.R.C.S., L.R.C.P., aged 31 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

CASSELL AND CO., London.
Manson's Tropical Diseases. Edited by P. H. Manson-Bahr, M.D. 7th ed. Pp. 960. 30*s.*

CHAPMAN AND HALL, London. J. WILEY, New York.
Laboratory Manual of Organic Chemistry for Medical Students. By M. Steel, Ph.D. Pp. 284. 9*s.* 6*d.*
Diseases of the Ear. By P. D. Kerrison, M.D. Pp. 596. 35*s.*

CHURCHILL, J. AND A., London.
Poverty and its Vicious Circles. By J. B. Hurry, M.D. Pp. 411. 15*s.*
Health of the Industrial Worker. By Professor E. L. Collis and Major Greenwood, M.R.C.P. Lond., M.R.C.S. Eng. With a Chapter on the Reclamation of the Disabled by A. J. Collis, M.D. With introduction by Sir George Newman. Pp. 450. 30*s.*

SAUNDERS, W. B., COMPANY, LTD.
A Text-book of the Practice of Medicine. By Professor James M. Anders, M.D., and John H. Musser, Jnr., M.D. 14th ed. Pp. 1284. 45*s.*
Chemical Pathology. Being a Discussion of General Pathology from the Standpoint of the Chemical Processes Involved. By Professor H. Gideon Wells, M.S. 4th ed., revised and reset. Pp. 695. 35*s.*
Practical Preventive Medicine. By Professor Mark F. Boyd, M.D. Pp. 352. 20*s.*
Collected Papers of the Mayo Clinic, Rochester, Minnesota. Edited by Mrs. M. H. Mellish. Vol. XI., 1919. Pp. 1331. 60*s.*
The Roentgen Diagnosis of Diseases of the Alimentary Canal. By Russell D. Carman, M.D., Professor of Roentgenology (Mayo Foundation). 2nd ed., revised. Pp. 676. 42*s.*
Bandages and Bandaging for Nurses. By M. Cordelia Cowan, President of the Colorado State Board of Nurse Examiners. Pp. 177. 10*s.* 6*d.*

Communications, Letters, &c., to the Editor have been received from—

A.—Mr. H. P. Anderson, Edinburgh; Association for the Prevention of Tuberculosis, Lond., Hon. Sec. of; Dr. A. C. Alport, Cape Town.

B.—Prof. J. M. Beattie, Liverpool; Dr. A. H. Burgess, Manchester; Dr. J. L. Brownlie, Glasgow; Dr. Boudreau, Bordeaux; British Dental Association, Lond., Dental Sec. of; Mr. G. Bethell, Lond.

C.—Carnegie United Kingdom Trust, Dunfermline, Sec. of; Crown Agents for the Colonies, Lond., Chief Engineer of; Dr. H. P. Cholmeley, Forest Row; Mr. A. E. Chisholm, Dundee; Chemical Catalog Co., New York; Dr. A. E. Carver, Torquay; Mr. G. C. Chubb, Lond.; Dr. J. B. Christopherson, Lond.; Chelsea Clinical Society, Lond.

D.—Sir J. Dundas-Grant, Lond.; *Daily Gazette*, Lond., Editor of; Mr. E. W. Dewey, Portsmouth.

E.—Ex-Service; Mrs. M. L. Eyles, Milford; Mr. M. J. Exner, New York.

F.—Mr. W. Felce, Bristol; Mr. C. H. Fagge, Lond.; Dr. T. Fraser, Aberdeen; Dr. W. M. Feldman, Lond.

G.—Dr. H. L. Gordon, Lond.; Guild of Health, Lond., Sec. of; Mr. E. H. Hey Groves, Bristol; Dr. M. Greenwood, Lond.

H.—Dr. F. Hancock, Norfolk, Virginia; Prof. W. D. Halliburton, Lond.; Dr. F. de H. Hall, Lond.; Mr. B. W. Hudson-Ryeroft, St. Andrews; Dr. H. Herd, Stockport; Harveian Society of London; Mr. W. Howarth, Lond.; Prof. F. G. Hopkins, Cambridge; Dr. E. Hughes, Liverpool.

I.—Imperial War Relief Fund, Lond., Organising Sec. of; Industrial Welfare Society, Lond.; Illuminating Engineering Society, Lond.

J.—*Journal of Industrial Welfare*, Lond.

K.—Dr. A. F. S. Kent, Manchester; Incorporated Association of Kinematograph Manufacturers, Lond., Sec. of.

L.—Mr. T. B. Layton, Lond.; London and Counties Medical Protection Society; Dr. J. E. A. Lynham, Lond.; Dr. R. B. Low, Lond.; Liverpool Medical Institution; Liverpool Maternity Hospital and Ladies' Charity, Sec. of.

M.—Manchester French Hospital, Hon. Sec. of; Major A. Macdonald, R.A.M.C.; Medico-Legal Society, Lond.; Middlesex Hospital Medical School, Lond., Sec. of; Mr. W. H. Martindale, Lond.; Manchester Medico-Ethical Association, Hon. Sec. of; Dr. P. H. Manson-Bahr, Lond.; Mr. M. Meredith, Liverpool; Dr. J. C. McClure, Lond.

N.—Mr. W. G. Nash, Bedford; Dr. E. Nash, Maidenhead; Newport, Town Clerk of.

O.—Mr. L. F. O'Shaughnessy, Newcastle-on-Tyne.

P.—Mr. V. Pauchet, Paris; Mr. H. Platt, Manchester; Dr. J. Peters, The Hague; Mr. G. A. Ponsonby, Lond.; People's League of Health, Lond.

R.—Mr. P. B. Roth, Lond.; Dr. J. D. Rolleston, Lond.; Royal Free Hospital Appeal Fund, Hon. Sec. of; Royal Society of Arts, Lond.; Dr. T. Rovsing, Copenhagen; Mr. J. H. Ryffel, Lond.; Dr. H. Roberts, Lond.; Royal Institution of Great Britain, Lond.; Mr. L. C. Rivett, Lond.; Royal Society, Lond., Asst. Sec. of; Royal Society of Medicine, Lond.; Royal Statistical Society, Lond.

S.—Scottish Board of Health, Edinburgh; Scientific and Industrial Research, Department of, Lond.; Prof. W. Stirling, Manchester; Mr. T. Y. Simpson, Plymouth; Société des Sciences Médicales et Biologiques de Montpellier; Mr. E. G. Slesinger, Lond.; Society for the Prevention of Venereal Disease, Lond.; Society of Apothecaries of London.

T.—Dr. G. de B. Turtle, Lond.; Miss M. A. Turner, Stoke Green; Dr. W. B. Tomson, St. Leonards-on-Sea; Sir N. Tirard, Lond.

V.—Miss M. Vince, Lond.

W.—Dr. E. Ward, Paignton; War Office, Publicity Department, Lond.; West London Post-Graduate College; Mr. A. J. Walton, Lond.; Dr. A. Whitfield, Lond.; Workers' Educational Association, Gen. Sec. of; Dr. L. Williams, Lond.; Sir G. Woodhead, Cambridge; Mr. H. I. Woolf, Le Havre.

Communications relating to the editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, London, W.C. 2.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Monday, March 14th.

GENERAL MEETING OF FELLOWS: at 5.30 P.M.
Discussion:
On "The Eradication of Tuberculosis in Men and Animals." To be opened by Sir John McFadyean, followed by Sir Clifford Allbutt, Dr. Arthur Latham, Professor Hobday, Dr. A. C. Inman, Mr. Cyril Nitch, Sir Sims Woodhead, and others.

Tuesday, March 15th.

GENERAL MEETING OF FELLOWS: at 5 P.M.
Ballot for Election to the Fellowship. (Names already circulated.)

MEETINGS OF SECTIONS.

Friday, March 11th.

CLINICAL SECTION
SECTION OF MEDICINE } at 5.30 P.M. (Cases at 5 P.M.)
SECTION OF SURGERY
Cases: The following will be shown by—
Sir Thomas Horder: Diffuse Sclerodermia.
Dr. Maurice Cassidy: Specimens from Neoplasm of Lung.
Mr. Paul Bernard Roth: Arterio-venous Aneurysm.
Mr. Kilner: Three Cases illustrating Plastic Surgery of the Face.
Adjourned Discussion:
On "The Medical and Surgical Treatment of Graves's Disease" will be continued by Mr. Joll, Dr. Leonard Williams, Dr. C. M. Wilson, Dr. Thorne Thorne, Mr. Dunhill, and Dr. Hector Mackenzie.

SECTION OF NEUROLOGY } at 8.30 P.M.
SECTION OF OPHTHALMOLOGY
Adjourned Discussion: On "Ocular Palsies."

Monday, March 14th.

WAR SECTION: at 5.30 P.M.
Paper: Colonel H. E. R. James: The Best Form of Instruction for Medical Students to Fit them to take their Part in Case of National Emergency.

Tuesday, March 15th.

SECTION OF THERAPEUTICS AND PHARMACOLOGY: at 4.30 P.M.
Paper:
Mr. Paul Bernard Roth: The Uses of Heliotherapy (illustrated by two cinematograph films and lantern slides).
Members of other Sections who are interested are cordially invited to attend the above meeting.

SECTION OF PATHOLOGY: at 8.30 P.M.
Communications:
Sir Lenthal Cheatle: Parenchymatous Inflammation of the Breast.
Dr. J. A. Murray and Dr. W. H. Woglom: Experimental Tar Cancer.
Dr. A. J. Eagleton: The Standardisation of Antipneumococcal Serum.
Dr. Nathan Raw: Attenuated Tubercle Bacilli.

Wednesday, March 16th.

SECTION OF HISTORY OF MEDICINE: at 5 P.M.
Papers:
Professor G. Elliot Smith: Ancient Egyptian Pathology and Medicine.
Mr. Geoffrey Keynes: The Unpublished Letters of Sir Thomas Browne.
Mr. Marshall Montgomery: The Identity of "Cursed Hebenon" in Shakespeare's *Hamlet* with Lignum Vitæ.

SECTION OF STUDY OF DISEASE IN CHILDREN: at 8.30 P.M.
Adjourned Discussion:
On "The Diagnosis and Treatment of Congenital Syphilis," to be reopened by Dr. Morley Fletcher, and continued by Mr. John Adams, Dr. Jewesbury, Mr. McDonagh, Mr. Neame, Dr. Pitts, and others.

Thursday, March 17th.

SECTION OF DERMATOLOGY: at 5 P.M. (Cases at 4.30 P.M.)
Communication:
Mr. T. C. Benians: The Presence of Catalytic Enzymes as an Aid to Diagnosis of Hair Infections.
Cases: The following will be shown by—
Dr. Knowsley Sibley: Monilethrix.
Dr. Hannay: Two Cases of Pityriasis Rubra Pilaris.

Friday, March 18th.

SECTION OF OTOLOGY; at 5 P.M.
Demonstration of Pathological Specimens by Dr. Albert Gray.
Paper: Mr. Jefferson Faulder and Mr. Colledge: Ears under Modern War Conditions.
Cases will be shown by—
Mr. Mollison, Mr. Cleminson, Mr. Colledge, and others.
SECTION OF ELECTRO-THERAPEUTICS: at 8.30 P.M.
Mackenzie-Davidson Memorial Lecture:
Professor W. D. Halliburton: Physiological Advance—the Importance of the Infinitely Little.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.
MONDAY, March 14th.—8.30 P.M., Discussion on Non-operative Treatment of Surgical Tuberculosis, to be opened by Sir Henry Gauvain, followed by Sir A. Bowlby, Mr. T. H. Kellock, Dr. W. T. G. Pugh, and Mr. W. H. Trethowan.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.
MONDAY, March 14th.—8 P.M., Cantor Lecture:—Major G. W. C. Kaye: X Rays and their Industrial Applications. (II.)

HARVEIAN SOCIETY OF LONDON, at the Town Hall, Paddington Green, W.
THURSDAY, March 17th.—8.30 P.M., Harveian Lecture:—Dr. L. Williams: The Thymus Gland in Every-day Life.

LONDON DERMATOLOGICAL SOCIETY, St. John's Hospital, 49, Leicester-square, W.C.
TUESDAY, March 15th.—4.30 P.M., Pathological Specimens. Cases sent for Consultation. Clinical Cases will be shown by Dr. J. L. Bunch, Dr. W. Griffith, Dr. W. K. Sibley, Dr. L. G. Pearson, Dr. A. C. Ribello, Dr. M. G. Hannay, and Dr. D Vinrace. Paper:—Dr. R. Craik: The Ringworms—some Observations on their Mycology.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, at the Royal Army Medical College, Grosvenor-road, S.W.
FRIDAY, March 18th.—8.15 P.M., Laboratory Meeting. Demonstrations:—Col. P. S. Lelean: Models of Some Sanitary Devices for the Tropics. Lt.-Col. J. C. Kennedy: The Pathological Histology of Tropical Sore. Lt.-Col. H. Marrian Perry: A Helminthic Infection in Relation to Bacterial Invasion of Tissues. Major F. N. Coppinger: Preliminary Work in Connexion with Detoxicated Dysentery Vaccines. Dr. J. G. Thomson and Dr. A. Robertson: Association of Charcot-Leyden Crystals with *Entamœba Histolytica*. Dr. H. St. J. Brooks: *Leptospira Icteroides* and *Leptospira Icterohæmorrhagiæ*. Dr. P. Manson-Bahr: *Bacillus Coli* Infections of Tissues. Miss E. M Baxter and Dr. A. J. Eagleton: Can Syringes be Sterilised by Means of Oil? Dr. A. Castellani and Dr. F. E. Taylor: Identification of Sugars and Other Carbohydrates by a Mycological Method. Mr. Cecil A. Hoare: Demonstration of Trypanosomiasis of British Sheep. Lt.-Col. S. P. James: A Case of Leprosy. And others.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.
MONDAY, March 14th.—12.15 P.M, Dr. Burnford: Pathological Demonstration. 2 P.M., Dr. S. Pinchin: Medical Out-patients. Mr. B. Harman: Eye Department. 5 P.M., Lecture:—Dr. G. Stewart: Syringomyelia.
TUESDAY.—10 A.M., Dr. McDougal: Electrical Department. 2 P.M., Mr. Banks Davis: Diseases of the Throat, Nose, and Ear. Mr. T. Gray: Surgical Out-patients. 2.30 P.M., Dr. Pritchard: Demonstration of Cases (Surgical Wards). 5 P.M., Lecture:—Dr. Pernet: Acquired Syphilis in Infancy and Childhood, with Remarks on Late Tertiary Congenital Syphilitic Manifestations.
WEDNESDAY.—10 A.M., Mr. MacDonald: Genito-Urinary Department. 2 P.M., Dr. Owen: Medical Out-patients. Mr. Addison: Operations. Dr. Morton: X Ray Department. 5 P.M., Lecture:—Mr. Gibb: Glaucoma.
THURSDAY.—10.30 A.M., Dr. Simson: Gynæcological Demonstration. 2 P.M., Mr. Baldwin: Orthopædic Department. Mr. D. Armour: Operations. 5 P.M., Special Lecture:—Dr. B. Ball: Nasal Suppuration (with lantern slides) (open to all medical practitioners).
FRIDAY.—10 A.M., Dr. G. Stewart: Neurological Demonstration. Mr. D. Buxton: Dental Department. 2 P.M., Dr. Pernet: Skin Department. 5 P.M., Lecture:—Mr. Steadman: Dental Sepsis in Relation to the Alimentary Tract.
SATURDAY.—10 A.M., Dr. A. Saunders: Medical Diseases of Children. 12 noon, Mr. Sinclair: Surgical Diseases of the Abdomen. 2 P.M., Dr. Owen: Medical Out-patients.
Daily:—10 A.M. Ward Visits. 2 P.M., In-patient, Out-patient Clinics and Operations.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.

MEDICAL SCHOOL.

MONDAY, March 14th.—2 P.M., Out-patient Clinic: Dr. Collier. 3.30 P.M., Lecture:—Dr. Saunders: Friedreich's Ataxia.
TUESDAY, March 15th.—2 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Lecture:—Dr. Risien Russell: Syphilis of the Nervous System. (II.)
THURSDAY, March 17th.—2 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Lecture:—Dr. Saunders: Occupation Neuroses.
FRIDAY, March 18th.—2 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Dr. Hinds-Howell: Disseminated Sclerosis.
Fee for Post-Graduate Course £7 7s. C. M. HINDS HOWELL, Dean.

MIDDLESEX HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON).
FRIDAY, March 18th.—3 P.M., Sir James Kingston Fowler: The Treatment of Tuberculosis.

KING'S COLLEGE (DEPARTMENT OF SCIENCE), Strand.
Nine Lectures on Problems of Modern Science.
WEDNESDAY, March 16th.—5.15 P.M., Lecture (IX.):—Prof. E. Barclay-Smith: Anatomy.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY, March 17th.—4 P.M., Lecture:—Dr. Hutchison: Disorders of the Liver.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, W.
MONDAY, March 14th.—5.30 P.M., Post-Graduate Lecture:—Dr. S. Goodall: Practical Points in Treatment.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.
TUESDAY, March 15th.—3 P.M., Lecture:—Prof. A. Keith: Darwin's Theory of Man's Origin.
THURSDAY.—3 P.M., Dr. G. C. Simpson: Meteorology of the Antarctic.
SATURDAY.—3 P.M., Lecture (III.): Sir Ernest Rutherford: Electricity and Matter.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.
TUESDAY, March 15th.—4.30 P.M., Lecture:—Mr. H. H. Rayner: Surgical Disorders of Infancy and Early Childhood (contd.)

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS, at the two Hospitals alternately.
THURSDAY, March 17th.—4.30 P.M., Dr. White: Diseases of the Eye. (At Salford Royal Hospital.)

Notes, Short Comments, and Answers to Correspondents.

COLONIAL HEALTH REPORTS.

Somaliland.—In a report on the Protectorate for the year 1919–20, signed by Mr. D. J. Jardine, Secretary to the Administration, it is stated that the average number of Europeans resident was 36, and the total of them on the sick list was 30, of whom 4 were invalided to England. During 1919 2064 patients were admitted to hospitals, as compared with 2421 in 1918 and 1039 in 1917. In 1918 the numbers were raised by an epidemic of influenza, and in the year under review there was a small-pox epidemic. The number of out-patients was 19,916, which differs little from the figures for previous years. There was a further decrease in the number of malarial cases, 500 being reported as against 558 in 1918, and 1 death from malaria as compared with 13 in 1918. Relapsing fever, on the other hand, is on the increase. The disease occurs at Hargeisa, where the *Ornithodorus moubata* tick is found. In the early stages of the disease intravenous injections of a salvarsan preparation, such as neo-kharsivan, have proved very successful. There were 132 cases of scurvy, as compared with 47 in the previous year. Most of the cases were slight and occurred amongst the Indian troops owing to the difficulty of obtaining a regular supply of fresh limes and fruit from abroad. There were no deaths from this disease. There were 5260 cases of ulcer treated during the year as compared with 4614 cases for 1918. The majority of cases appear to be the ordinary tropical ulcer, or "Aden ulcer," as it is sometimes called, which is very common on the Red Sea littoral. Small-pox was present in epidemic form during the whole of 1919. The first recorded case came from Abyssinia to Hargeisa, whence, owing to the nomadic habits of the people, the disease spread throughout the country. 662 cases were admitted to the isolation camps, where there were 296 deaths. The outbreak was not severe; but there must have been many cases and deaths in the interior which never came to the notice of the medical department. Some villages, indeed, where the disease was rampant, were abandoned by the inhabitants. There were 104 cases of chicken-pox, as compared with 20 cases in the previous year. The influenza epidemic of 1918 did not recur in 1919; there were only 69 cases of this disease, mostly at the coast, and 4 deaths. There were 59 cases of dysentery, some of which were definitely amœbic and appear to have been brought by troops from East Africa. Venereal diseases were still on the increase, 262 cases of syphilis and 516 cases of gonorrhœa being recorded, as against 143 and 339 respectively in the previous year. Tuberculosis, chiefly of the lungs, is also steadily increasing, 300 cases being recorded during the year. The total rainfall in Berbera in 1919 was 2·31 inches, as against 1·93 in 1918. In the interior the rainfall is considerably more than this, but up to the present it has not been practicable to keep records except in Berbera. The highest shade temperature recorded at that station was 116° F. in August, and the lowest 63° in January.

Swaziland.—A census taken in 1911 showed that the total population was 99,959, comprising 1083 Europeans, 143 coloured, and 98,733 natives. The European population is now about 1800. The births amongst Europeans in 1919 numbered 50, the deaths 25, and the marriages 10. The births and deaths of natives are not registered. The general health of the territory during 1919–20 was fairly good, and no epidemic of any importance occurred. During and for some months after the rainy season malarial fever was above the normal, especially in the low-lying parts. In some cases it was associated with influenza, but deaths were confined to natives out of touch with medical attendance. Leprosy has not increased, but the necessity for segregation of the few existing cases is receiving attention. The natives are still loth to report cases of venereal disease, but the coöperation of the police in bringing cases to light has been of great assistance, and many cases have been treated with satisfactory results. The average rainfall in 1919, as recorded at 17 stations throughout the territory, was 38·42 inches—considerably below the normal. Both rainfall and temperature vary considerably with the altitude of the station. At Mbabane, which lies at an altitude of 4000 feet, the highest screen temperature recorded was 95·3° and the lowest 35°. At Croydon, in the low veldt, the maximum was 106° and the minimum 35·5°. The only Government hospital in the territory is at Mbabane. It contains one European and two native wards. There were 123 admissions during the year, and nearly 3670 out-patients were treated.

Bechuanaland.—Mr. J. Ellenberger, Government Secretary, reports that the health conditions throughout the Protectorate for the year ended March 31st, 1920, were of average incidence and not remarkable for any feature of special prevalence. 2300 cases received hospital treatment. Of these, 44 were indoor. Of the outdoor cases, the prevailing disease was malaria, or conditions directly or indirectly due to it; the remainder, general, medical, and surgical affections. Several outbreaks of malaria were reported from the remote and outlying districts; and at some of these places there was a high death-rate from intercurrent diseases, such as pneumonia. There has been no recurrence of epidemic influenza anywhere throughout the territory, and there has been a complete absence of outbreaks or isolated cases and other general epidemic diseases.

Uganda.—In the latest official report on this Protectorate the following remarks appear under the heading "Climate and Meteorology": Uganda cannot be considered healthy, but its recent notoriety due to the ravages of sleeping sickness can now be safely neglected; it is neither a "white man's country" nor the "white man's grave." For a family man the country possesses distinct disadvantages. European children as a rule thrive well in infancy, but considerable risk is attached to bringing them out when they are over 2 or 3 years old, as they are liable to attacks of malaria and the resultant anæmia. The health of adults depends mainly on their mode of life, and with care constitutional health should not be impaired irremediably, but if physical fitness is maintained the altitude and proximity to the equator combine to produce nervous strain after prolonged residence. A holiday in a temperate climate is desirable at least every two or three years. Outdoor manual labour is dangerous for Europeans, and on plantations a manager's or owner's duties are for the most part supervisory. The mean maximum temperature for most districts averages 80°, and the mean minimum 60°. On the Ruwenzori range there is extreme cold with perpetual snow, and it is also cold on the higher slopes of Mount Elgon. In the Nile Valley, near Lake Albert, on the other hand, the mean maximum temperature is 90° and the mean minimum 74°. The favourite localities for European plantations are the Buganda Province, the Toro district of the Western Province, and the Bunyon district of the Northern Province. There are a few estates in Busoga (Eastern Province), but this area is not so popular. Statistics taken at Entebbe, the seat of the Government, give the following results: Average rainfall for the last 19 years, 58·64 inches; average temperature for the last 15 years, maximum 78·5°, minimum 62·8°; mean daily sunshine, 5 hours 36 minutes. Two main rainy periods are anticipated annually. The first, the "long" rains, usually begin in March and may continue through June. The second, or "short," rains begin in September and extend through October and occasionally November. Much of the rain falls during the night or early morning and seldom continues throughout the day.

Zanzibar.—The population of this Protectorate according to the last census was 196,733. The birth-rate in 1919 was 18·5 per 1000 of population, as against 19·4 in 1918. The report omits to give the death-rate, but states that the islands of Zanzibar and Pemba were free from any severe epidemic of disease during the year, except a slight recurrence of influenza in October, and the health of the community has been fair. There were 37 deaths from tuberculosis, 21 from malaria, 14 from dysentery, 2 from small-pox, and 1 from cerebro-spinal fever.

THE TEMPERATURE FACTOR IN THE ONSET OF PUBERTY.

IT is generally accepted that the onset of puberty begins earlier in the tropics than in temperate zones, and is correspondingly delayed in the extreme north or south. It is recognised that the period of onset bears a relation to the temperature of the geographical area. At first glance it might appear that in North America the temperature does not play this rôle, for missionaries have recorded many cases of Eskimo women at Point Barrow in Alaska, 300 miles north of the polar region, who have been delivered of their first child at 12, or even at 11 years of age. Vilhjamur Ltefansom, in the *Journal of the American Medical Association*, lxxv., 1920, can from his own observations confirm the statement that in Eskimo girls maturity arrives at from 10–13 years. The explanation, however, appears to lie in a consideration of the conditions under which the girls are brought up and live. It appears that the temperature of the interior of their dwelling places is maintained at about 80° to 90° F., even when the external temperature is 40° to 50° below zero. The fur coverings in which the Eskimos envelop their bodies protect them fully against these low temperatures, so that they actually live in a temperature akin to that of Sicily, where early maturity seems to be largely dependent on the high temperature. In their dwellings, however, —so hot are they—the Eskimos put aside their warm coverings, all except a pair of pants, and the heat is so great

that even then there is an almost constant outpour of sweat over the body. Possibly the artificial heat, like the sun's heat in tropical climes, greatly modifies the metabolism. Amongst the Eskimos the heat acts directly more on the women than the men, because the former live more in their dwellings. Amongst the Doy-Rib and Yellow-Knife Indians maturity of the girls occurs about the same time or later than amongst the white races of Northern Europe. This condition stands in relation with the mode of life of these tribes, living in less heated tents, wearing lighter clothing, and exposed more directly to their cold raw climatic influences.

AN INSULATED VESSEL.

WE have received from the Aladdin Industries, Ltd., 130, Southwark-street, London, S.E.2, a specimen of a "Thermalware" jar, which looks like a useful addition to the equipment of the housekeeper and of the traveller, or indeed wherever it is required to keep food or drink hot or cool. The apparatus consists of an outer aluminium jacket of barrel shape and an inner vessel of silvered glass holding a gallon, the space between the two vessels being filled with a non-conducting material. The mouth of the vessel is 4 inches wide, thus allowing the insertion of the hand for packing the container with solid food or for cleaning purposes. The insulation is effective, the fall in temperature of the contents of the jar not exceeding 7° in an hour. For the sick-room the vessel suggests many possibilities—e.g., the storage of ice for packs, of hot flannels for fomentations, or of blood-warm fluid for transfusion. The apparatus is artistically finished, it is constructed on sound hygienic lines, and risk of breakage is reduced to a minimum.

THE QUEEN'S NURSES AT BRIGHTON.

THE Brighton, Hove, and Preston District Nursing Association, to which the Queen's Nurses are affiliated, has had to reduce its staff owing to the lack of funds, and after 24 years' work the annual report announces:—

"The chief sources of income—voluntary subscriptions, public health work, patients' payments, and training fees for candidates—do not even cover the salaries of staff, uniform, and board."

Another extract from the report says:—

"It would appear as if in the future the steady income from voluntary subscriptions will no longer be reliable, and the only way to keep the association solvent will be by organising popular functions and amusements to raise funds."

It cannot be said that the decrease in funds is due to any slackness on the part of the nurses, for 1920 was a record year, the number of cases showing an increase of 325 over 1919, the patients nursed being 2406, and the visits paid 80,792. The balance-sheet demonstrates that there has not been a corresponding response on the part of the general public, and the Queen's Nurses will thus be unable to form an important unit in the provident scheme now being organised in Brighton and Hove. A tribute to the work of the Queen's Nurses was paid at the recent annual meeting by Dr. Duncan Forbes, M.O.H., Brighton, who stated that whereas 30 per cent. of the cases admitted to the Blind School owed blindness to inflammation of the eyes just after birth, since the nursing had been undertaken by the Queen's Nurses no further recruits from that cause had been under treatment at the institution. Earnest appeals were made by several speakers for more financial support.

INDUSTRIAL RESEARCH ASSOCIATIONS.

BELOW is a list of research associations which have been approved by the Department of Scientific and Industrial Research as complying with the conditions laid down in the Government scheme for the encouragement of industrial research, and have received licences from the Board of Trade:—

British Boot, Shoe and Allied Trades Research Association, Technical School, Abington-square, Northampton. Secretary: Mr. John Blakeman, M.A., M.Sc.

British Cotton Industry Research Association, Shirley Institute, Didsbury, Manchester. Secretary: Miss B. Thomas.

British Empire Sugar Research Association, 3/5, Old Queen-street, S.W.1. Acting Honorary Secretary: Mr. H. T. Pooley.

British Iron Manufacturers' Research Association, Atlantic Chambers, Brazennose-street, Manchester. Secretary: Mr. H. S. Knowles.

Research Association of British Motor and Allied Manufacturers, 15, Bolton-road, Chiswick, London, W.4. Director of Research: Mr. H. S. Rowell, O.B.E., A.R.C.Sc., Wh. Sch.

British Photographic Research Association, Sicilian House, Southampton-row, London, W.C.1. Secretary: Mr. Arthur C. Brookes.

British Portland Cement Research Association, 6, Lloyd's-avenue, London, E.C.3. Secretary: Mr. S. G. S. Panisset, A.C.G.I., F.C.S.

British Research Association for the Woollen and Worsted Industries, "Torridon," Headingley-lane, Leeds. Secretary: Mr. Arnold Frobisher, B.Sc.

British Scientific Instrument Research Association, 26, Russell-square, W.C.1. Secretary: Mr. J. W. Williamson, B.Sc.

Research Association of British Rubber and Tyre Manufacturers, care of Messrs. W. B. Peat and Co., 11, Ironmonger-lane, E.C.2.

Linen Industry Research Association, "Glenmore House," Lambeg, Belfast. Secretary: Miss M. Burton.

Glass Research Association, 50, Bedford-square, W.C.2. Secretary: Mr. E. Quine, B.Sc.

British Association of Research for Cocoa, Chocolate, Sugar Confectionery, and Jam Trades, 9, Queen-street Place, E.C.4. Secretary: Mr. R. M. Leonard.

British Non-Ferrous Metals Research Association, Athenæum Chambers, 71, Temple-row, Birmingham. Secretary: Mr. E. A. Smith, A.R.S.M., M.Inst.M.M.

British Refractories Research Association, 14, Great George-street, S.W.1. Secretary: Mr. R. C. Rann.

Scottish Shale Oil Scientific and Industrial Research Association, 135, Buchanan-street, Glasgow. Secretary: Mr. H. R. J. Conacher.

British Leather Trades Research Association, 26, Thomas-street, S.E.1. Secretary: Miss M. A. Stevens.

British Launderers' Research Association, 62–5, Bank Chambers, 329, High Holborn, W.C.2. Secretary: Mr. J. J. Stark.

British Electrical and Allied Industries Research Association, 19, Tothill-street, Westminster, S.W.1. Director of Research: Mr. E. B. Wedmore.

British Silk Research Association, The Silk Association of Great Britain and Ireland, Incorporated, Kingsway House, W.C. Secretary: Mr. A. B. Ball.

British Motor Cycle and Cycle Car Research Association, "The Towers," Warwick-road, Coventry. General Manager: Mr. H. R. Watling.

British Cutlery Research Association, P.O., Box 49, Sheffield. Secretary: Mr. J. M. Denton.

British Music Industries Research Association, Northern Polytechnic Institute, Holloway, N.7. Director of Research: Dr. R. S. Clay.

There are other research associations approved by the Department not yet licensed in which schemes for the establishment of research associations have reached an advanced state of development, and yet others only in the proposal stage, or engaged in the preliminary consideration of schemes for forming research associations.

BELGIUM AND MEDICAL RECIPROCITY.

THE abandonment of reciprocity in medical practice between this country and Belgium, mentioned in a leading article in THE LANCET of Feb. 26th, is the subject of a letter in a recent issue of *Le Scalpel* from Dr. Clément Philippe, the President of the Belgian Society of Medicine in England. Our colleague recalls the formation of this society on Nov. 15th, 1914, "during the first days of the exodus." He recounts the rising prosperity of this society, the granting of facilities by the General Medical Council, and his own attempts to secure reciprocity from the Belgian Government in August, 1920. Dr. Philippe has evidently not yet given up hope of ultimate success.

Bees' Wine is apparently an alternative name for the "ginger-beer plant" described by the late Dr. H. Marshall Ward in the Proceedings of the Royal Society for 1891. The so-called plant, which bears superficial resemblance to pearl barley, belongs to the class of symbiotic ferments in which a yeast and bacterium unite, as in such ferments as those used to produce kephir or koumiss. The ginger-beer plant can ferment saccharose, maltose, dextrose, and lævulose, but not lactose, being inferior in this respect to the other ferments named. Mr. E. M. Holmes, F.L.S., gives illustrations of the plant itself and of the symbiotic yeast and bacterium in the *Pharmaceutical Journal* for Jan. 3rd, 1920. The plant appears to be used largely in the North Riding of Yorkshire, to prepare an alcoholic drink, 4 ounces each of sugar and treacle being mixed with half a pint of warm water to which the plant is added, the mixture being kept in a warm place and a teaspoonful of sugar added each day. The plant itself increases, and can be used to prepare fresh batches of liquor. The name "Bees' Wine" may be derived from the apparently purposeful circulation of the fragments of the plant in the fermenting fluid, which are alternately buoyed up to the surface by CO_2 bubbles and sink again after their discharge.

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